THE IRON AGE

THURSDAY, DECEMBER 25, 1890.

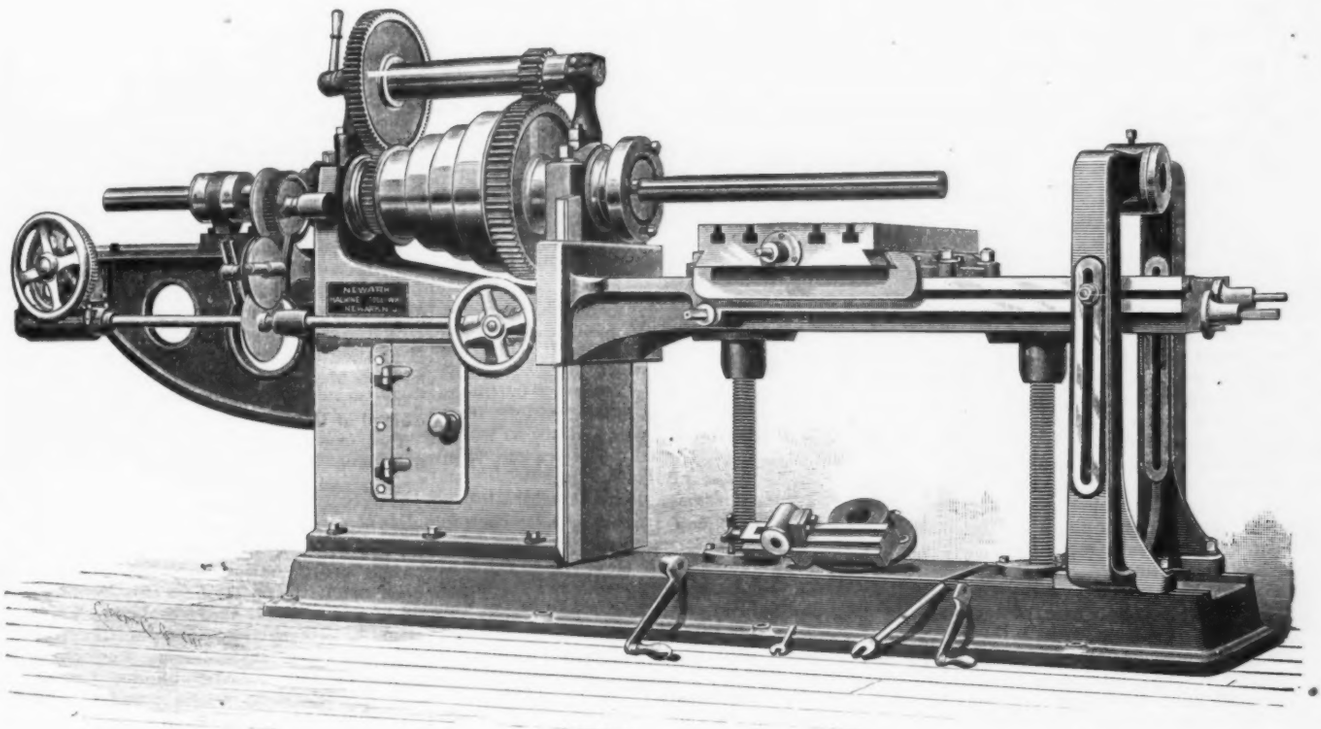
Horizontal Boring and Drilling Machine.

On this page we present an illustration of a horizontal boring and drilling machine, which has been designed with little regard to the existing type, and which has a feed motion which would seem to offer many advantages. It was designed by the Newark Machine Tool Works of Newark, N. J., and although it has been in successful use for some time, it is now illustrated for the first time.

To begin with, the feed arrangements have been put on the opposite side of the machine from where they are usually put, thus bringing the operator into the same position with regard to the cone pulley, and the various hand wheels and levers by which the machine is operated, that he occupies at the lathe, which is believed to be an advantage, since the lathe is the standard machine tool with which all machinists are familiar. This machine is not the only one in which the parts are so arranged, but the usual practice is to place them on the other side, so that the cone pulley and hand wheels come at the right of the operator, instead of the left, as they do on the lathe.

The feed details have, it is believed, been reduced to the simplest possible form, considering the ends attained by them—viz., a great range of feed with any required number of variations, and which can be changed either in rate or direction with the greatest facility. For securing the changes in the rate of feed the Sellers friction disks have been adopted, the materials chosen for their construction, and the method used for regulating the pressure of the central disks upon the upper and lower disks, insuring their satisfactory operation under the heaviest duty. Any rate of feed from $\frac{1}{16}$ to $\frac{1}{4}$ inch is instantly available by the simple movement of a lever. These friction disks drive a worm shaft which extends to the rear of the machine, and is there provided with two worms, one right and the other left hand, these worms being cut upon a sleeve which is fitted to the shaft, and can be moved along to make either of the worms engage with the wheel, which is an ordinary spur gear. Thus the feed may be in either direction at will, and a cutter after passing through a bore can be run back for the finishing cut when desired without disturbing it in the bar. The clamp by which the bar is secured to the feed slide grips it by friction only, instead of having holes through for a pin, and thus it can be gripped at any point, instead of a limited number of points only.

The table can be raised or lowered from the side or end of the machine, as may be most convenient, and the platen has the usual movements in either direction, in addition to which a platen is furnished where desired which can be turned around on the table to any angle. Special pains have been taken to make all the parts of the machine amply heavy for the duty they have to perform, particular attention being given the yoke which supports the outer end of the bar, since weakness of this part of the machine is quite too common, and where it occurs greatly limits the capacity of the machine. It has been customary to grade these machines by the swing—that is, by the distance from the center of the boring bar to the top of the table, but the Newark Machine Tool Works grade their machine by the diameter of the boring bar, which limits the diameter of the hole which the machine can bore and which measures, therefore, the capacity of the machine. The swing, length of table and size of carriage the makers change as required. The machine from which the engraving is made is called the "C" machine, and has a 3-inch bar with a table 5 feet long. It will swing over the platen 3 feet 3 inches, and over the table 4 feet The platen is 30 inches long, 17 inches wide, and has a motion across the bed of 24 inches The machine measures over all 10 feet 9 inches and weighs 7500 pounds. It will bore holes up to 18 inches diameter. Other machines of the same design are built having bars 4, 5 and 6 inches diameter, and with other parts in proportion, the largest machine weighing about 17,000 pounds. The squaring attachment shown is furnished with each machine, and the swing or size of platen or table can be altered to suit special requirements.



HORIZONTAL BORING AND DRILLING MACHINE, BUILT BY THE NEWARK MACHINE TOOL WORKS.

A comparison of the statistics of travel on the East River bridge and the Third avenue horse car line in this city, which is about to introduce cable traction, is instructive in various respects. During the year 1889 the Third avenue line carried 31,458,000 passengers, and the bridge railroad carried 33,954,773. The receipts of the Third avenue line were $1,572,861.07, and of the bridge railroad $931,973.39. The operations of the surface road paid a dividend of 9 per cent. on the capital stock and $223,283.85 interest on the bonds, and left a surplus of $47,496. The operations of the bridge last year, after paying $500,140.58 for real estate, rolling stock and improvements, left a balance on hand of $255,676.32. The pay roll of the bridge amounts to $580,000 a year; that of the surface road to $560,000. The total expenses of the bridge are $1,075,436.71 for the year. The total expenses of the surface road are $1,085,404.32 for the year.

NAVY ORDNANCE.

REPORT OF THE SECRETARY OF THE NAVY.

The following table gives the number of sets of forgings so far ordered, the number of guns completed, and the number of guns now under construction at the Washington Gun Foundry :

Caliber.	Forgings ordered.	Completed guns.	Guns under construction.
4-inch....	35	4	12
5-inch....	4	2	.....
6-inch....	128	77	25
8-inch....	35	15	2
10-inch....	25	4	3
12-inch....	8	.....	.....
13-inch....	12	.....	.....

Of the above guns, the 4-inch and 5-inch may properly be classed as "rapid firing guns," employing fixed ammunition—that is to say, having the cartridge case, charge and projectile combined in one. The 5-inch gun is the largest that present investigation and experience indicate as properly adapted to the quick firing feature. The combined weight of the cartridge case, charge and projectile in this gun is estimated not to exceed 100 pounds, which can be handled without difficulty. Beyond this it is inexpedient to go, as the great weight of the projectile prevents the rapidity of fire which is this gun's essential feature. A specimen of the 4-inch gun has been completed and tried, and has given highly satisfactory results, two types, differing in their breech mechanism, having been manufactured.

The adoption of rapid firing guns of large caliber has made it necessary to develop a plant for the manufacture of suitable cartridge cases, and an agreement has accordingly been made with the Winchester Repeating Arms Company of New Haven, Conn., to supply 15,000 cases, with the option to the Department to order 10,000 more at a reduced price. The company have nearly completed the machinery necessary for making these cases, and their delivery will soon begin.

Passing to the heavy guns, the first is the 6-inch, the length of which has been increased from 30 to 35 calibers. The performance of the new gun is satisfactory, and specimens will soon be made with a still longer bore, a gun 40 calibers in length having been designed for this purpose.

Of the 8-inch guns, six of the new design, 35 calibers in length, have been manufactured, tested, with good results, and issued, and a new 8-inch gun, 40 calibers in length, has been designed, which it is proposed to mount on cruiser No. 12. The great advantage of this gun, as of all long guns, is the flat trajectory of the projectile, due to its high velocity, which makes it possible to use the gun successfully at ordinary battle range without accurate measurement of distance.

Of the 10-inch guns, four that make up the armament of the Miantonomoh are completed, and three of the four for the Maine are in an advanced stage of manufacture.

No 12-inch guns have yet been made, but forgings for one gun have been received from the Bethlehem Iron Company, and the gun factory is ready to proceed with the manufacture of these guns as fast as forgings are delivered.

The design for the 13-inch gun, 35 calibers in length, has been completed, and the tools for its manufacture are in course of construction. Twelve sets of forgings of this size have been ordered from the Bethlehem Iron Company for the batteries of the three new battle ships.

All contracts with private firms for the manufacture of heavy guns have been completed in the course of the past year, and the guns have been proved and issued to the service. No further contracts of this character will be made with private firms, the capacity of the gun foundry at Washington being sufficient to handle forgings as fast as they will be received.

The ordnance work of the past year has included the completion and installation of the armaments of the Baltimore, the Philadelphia, the San Francisco and the Miantonomoh, while those of the Newark and Concord are ready.

The 8-inch guns of the Charleston are also ready, and will replace four of her 6-inch guns on her return. The manufacture of the new armament for the gunnery ship Lancaster has been begun. It is believed that with the increased rapidity of delivery of forgings from the Bethlehem and Midvale companies and the development of the Washington Gun Foundry, batteries can hereafter be furnished to new ships as fast as the latter are completed. The Midvale Company are now engaged in putting up a plant for forgings of large calibers and by the early part of next year will probably be able to do machining up to 10-inch guns, and to cast and forge up to 13-inch. There will, therefore, be two firms in the United States ready to supply any gun forgings that are likely to be needed.

The improvements at the gun foundry during the past year include the erection of the 110-ton overhead traveling crane, the completion of the shrinkage pit, gun carriage shop and office building, the construction of a railway siding from the Baltimore and Potomac Railroad which has greatly facilitated deliveries and shipments, and the purchase of a shifting engine and of several special machine tools.

I desire to call particular attention to the extraordinary reduction in the cost of making guns and carriages which the gun factory has accomplished. The tables given below make a comparison of the average cost of the 6-inch, 8-inch, and 10-inch gun manufacture, first, under the old contracts with private firms; secondly, at the Washington Gun Factory in 1888, and finally, at the same place in 1890, from which it appears, to take a single example, that the 8-inch guns, for manufacturing which the Government, under the old contract, paid $8500 per gun, aside from the cost of forgings, were manufactured by the Washington factory in 1888 for $5163 and in 1890 for $2772.

A similar reduction is to be noticed in the cost of 6-inch carriages, the average of the first ten manufactured being $6556, and the last ten $2824, a reduction chiefly in labor, as the material, though diminished in cost, has not shown a proportionate variation.

The tables are as follows:

Guns.

Caliber.	Average cost of manufacture.			Average time of manufacture in 10-hour days.	
	By contract with private firms.	Washington Gun Factory.		Washington Gun Factory.	
		1888.	1890.	1888.	1890.
6-inch....	$3,400	$2,649	$1,298	115	60
8-inch....	8,500	5,163	2,772	225	120
10-inch...	.....	6,334	3,500	240	164

6-inch Carriages

	Labor.	Material.	Total cost.
Average of—			
First 10 ...	$4,423.10	$2,133.21	$6,556.31
Second 10...	3,027.41	1,283.32	4,310.73
Third 10....	2,250.74	1,191.35	3,442.09
Fourth 10...	1,968.05	1,344.67	3,312.72
Fifth 10.....	1,708.00	1,116.00	2,824.00

The act approved June 30, 1890, appropriated, for the purpose of enabling the Secretary of the Navy to manufacture and experimentally test, under rules and conditions to be prescribed by him, a submarine gun and projectiles for the same, $30,000: Provided, that no part of this money shall be expended until the owners of the patents to be tested under this provision shall agree by contract to give the Government the option, within a specified time, to contract, at such price as shall be satisfactory to the Secretary of the Navy, for the exclusive right on the part of the Government to manufacture, by contract or otherwise, such submarine guns and projectiles without the payment of any royalty on the same: Provided, that such submarine gun and projectiles shall prove satisfactory, on due test, and be approved by the Secretary of the Navy.

In pursuance of this act, the Navy Department, under date of September 19, 1890, entered into contract with the Ericsson Coast Defense Company for one submarine gun and six steel projectiles, the gun and projectiles to be fixed and secured in position on board the steam vessel known as the Destroyer.

It is proposed to make a thorough test of this system of submarine artillery, which possesses undeniable advantages, if applied to special types of vessels, such as the ram designed for work at close quarters. The experiments will be conducted at the torpedo station at Newport.

Cast iron common shell and shrapnel have been manufactured at Washington and supplied to the new ships as fast as needed. The manufacture of cast steel common shell has been discontinued for the present, the results obtained not having proved satisfactory. Efforts have been made to develop in this country a process of making common shell of forged steel, as this shell possesses marked advantages, and it is hoped that before long specimens may be obtained for test, and that the manufacture may be domesticated in the United States.

The specimens of armor piercing projectiles hitherto received from private firms in this country, tempered by various processes, have not proved satisfactory, and the only present prospect of securing what we need is by the adoption of some one of the processes in use abroad. A contract has been made for a quantity of projectiles to be manufactured in America by one of these processes, and the Department is still endeavoring to bring about some arrangement by which it may obtain other armor piercing shells of the best quality of American manufacture.

The great number of inventions, possessing more or less merit, in the way of light rapid firing guns, has multiplied the number of types in use in all the navies of the world. The manifest disadvantage of this extreme diversity of types, each with its special ammunition, on board a single ship, has led the Department to look with favor upon a plan to limit the smaller rapid firing pieces to the 6-pounder and 1-pounder calibers, and to abandon as fast as is practicable the 3-pounders and the 47 mm. and 37 mm. revolving cannon.

The Driggs Ordnance Company have begun work on the ten 6-pounder and ten 3-pounder guns and ammunition ordered last year.

The Hotchkiss Ordnance Company have filled their original contratct with the De-

partment for 94 Hotchkiss guns and ammunition, with the exception of steel shell for the 6-pounder and 3-pounder, in the manufacture of which, of the proper quality, considerable difficulty has been experienced. Deliveries have also been made under later order.

TORPEDOES.

This country has been thus far absolutely without a successful automobile torpedo. This fact has been referred to more or less from time to time, in reports and papers, for several years past, but it does not seem to have received the attention which its gravity demanded. Vague hopes and expectations that something would turn up gradually fixed themselves upon the Howell torpedo as the probable solution of the problem, although it was still in an experimental state. Finally, on January 5, 1889, a contract was made with the Hotchkiss Ordnance Company, the manufacturers of this weapon, for 30 torpedoes, of which 10 were to be delivered by June 1, 1890, and all by September 1 of the same year. This contract has not yet been filled, owing to the loss of two torpedoes at preliminary trials and the failure of the company thus far to produce a weapon that fulfills the requirements of the contract. An extension of the contract time has been granted, and the manufacturers hold out expectations that they will be ready for another trial and for making deliveries by the 1st of January, 1891.

Notwithstanding these expectations, the necessity of possessing a practical torpedo was so great, and the question whether the Hotchkiss Ordnance Company would be able to produce one answering the requirements of the contract so doubtful, that the Department would have fallen short of its duty had it not made an effort to meet, in some other way, the necessities of the situation. Negotiations have therefore been undertaken with the Whitehead Torpedo Company with a view to domesticating the manufacture of their torpedo, the most successful yet produced in the world. Favorable terms have been made, and an order will shortly be placed with an American firm for a number of Whitehead torpedoes. If the Hotchkiss Company shall finally succeed in producing a torpedo to answer the necessary conditions, the two designs will be subjected to competitive tests, with a view to ascertaining the expediency of definitely adopting one or both of them for service use. In the meantime the bureau is continuing its investigations with other designs.

Of torpedoes other than the automobile, one, of the Patrick design, a torpedo electrically directed from the shore, has undergone a successful test. Two others remain to be supplied to complete the three ordered February 26, 1889. It is proposed to use these torpedoes for purposes of instruction in connection with the Naval War College.

Enormous Horse-Power.—It is a very easy matter to talk about 18,000 or 20,000 horse-power, but few persons realize what it means or the enormous force that it exerts. The new White Star steamships, for instance, or the Inman Line's City of New York develop from 18,000 to 20,000 horse-power. They have 12 boilers and 72 furnaces, worked with forced draft. Assuming that the engines will require 18 pounds of steam per horse per hour, then 160 tons of feed water must be pumped into the boilers every hour and 160 tons of steam will pass through the engines in the same time. In 24 hours the feed water will amount to 3840 tons, occupying 138,240 cubic feet. This amount of water would fill a length of 493 feet of a canal 40 feet wide and 7 feet deep. Taking the condensing water at 30 times the feed water it will amount to 4800 tons per hour, or 115,200 tons in 24 hours, or for a six-day transatlantic run not less than 691,200 tons, or 24,883,000 cubic feet. This amount of water would fill a cubical tank 295 feet on the side—a tank into which the Roman Catholic Cathedral, steeples and all, or the *Times* building could be put and completely covered up. The coal consumption is not less interesting. Four hundred tons a day are burned on the 20,000 horse-power pressure. This would fill 400 wagons. It requires for its combustion 8609 tons of air, occupying a space of 222,336,000 cubic feet. It is impossible to put these figures in a shape such that they may be grasped by the average reader, but enough has been cited to show, nevertheless, that the circulating pumps and fan engines of such ships are a hard-working lot.

The Joliet Steel Works Club.

On Saturday, 20th inst., occurred the first anniversary of the opening of the club house of the workmen connected with the Joliet Works of the Illinois Steel Company. It was celebrated by appropriate exercises, held in the auditorium of the club house in the afternoon. A special train was run from Chicago via the Rock Island road, conveying the officers of the company and a number of invited guests to attend the exercises. Many of the latter had never seen the club house, and after they arrived there some time was allowed for an inspection of its features. The workmen of the company were found scattered through the building, taking advantage of its opportunities for physical and mental exercise and amusements. These features of the club house have been set forth on previous occasions in our columns. At 4.30 the exercises began in the auditorium. The club orchestra opened the programme with an overture, which was well rendered on brass and stringed instruments. S. Fewtrell, chairman of the club, who presided, then made an opening address, marked with strong common sense.

W. Crane, superintendent of the club, then read the first annual report, presenting statistics of membership, giving full accounts of the results obtained in the various classes, and in every respect highly commending the members of the club for the interest taken in it and for the most excellent care taken of the property. The club has had on its list during the year 1350 names, but owing to removals and other causes, unnecessary to enumerate, there are now 854 active members. The club has been proved to be a thorough success in every respect and the officers of the company are well satisfied with the showing for the first year. A paper has just been started, called the *Steel Worker*, the first number of which has appeared and which is expected to be an interesting feature of the club work. Mr. Crane made a strong plea for the maintenance of interest in the club by the workmen.

The Philomela Ladies' Quartette rendered some charming vocal music, after which an address on behalf of the trustees was delivered by W. R. Stirling, first vice-president of the Illinois Steel Company. Mr. Stirling having been the originator of the club, his appearance on the platform was the signal for an outburst of hearty applause from the assembled steel workers. His first sentences showed the interest he took in the people of Joliet, as he dwelt upon the calamity which had befallen a number of the company's workmen, who had been killed or seriously injured by the collapse of a blast furnace. The people of Joliet were assured of the company's earnest sympathy with them in their deep bereavement. Mr. Stirling then proceeded to make an earnest appeal to the workmen present to endeavor in every way to improve their minds, and to apply themselves diligently to make the most of their opportunities. He referred to the examples set them by men whom they knew who were born without being specially favored by fortune, but had earned advancement through the deligent use of the opportunities given them, which were in every case not to be compared with the advantages now possessed by themselves. Mr. Stirling's address was an eloquent appeal to the judgment and reason of the men, and his earnestness excited their enthusiasm.

After vocal music by the quartette, an address on patriotism was delivered by Harlow W. Higinbotham of Chicago, but a native of Joliet, born there when the Indians still inhabited the surrounding country, and the boundary line between civilization and barbarism was sharply defined in that locality, now the site of a large manufacturing city. Mr. Higinbotham's address was a stirring appeal for the cultivation of patriotic sentiments, and was well received by the audience. An address was then made on behalf of the club members, by H. W. Spencer, who portrayed in eloquent terms the pleasant rolations existing between the Illinois Steel Company and their Joliet workmen. The exercises closed with the singing of the National Anthem by the entire audience.

Nickel Steel.

An interesting question has been raised in regard to the priority of invention of nickel steel. In a letter to *L'Ancra*, of Saint-Dizier, Charles Walrand, a well know French metallurgist, refers to experiments carried on at the Forges de Montataire, in rolling ferro-nickel with varying proportions of the latter metal. The idea of those who undertook these experiments was to ascertain whether ferro-nickel could not be made to replace copper and white allows in their application because of the property of ferro-nickel of not being subject to oxidizing influences. At Walrand's instigation a certain number of physical and chemical tests were made of the specimens rolled, among them some possessing extraordinary qualities. The alloy used as a base varied in composition as follows:

	Per cent.
Carbon	0.15 to 0.05
Phosphorus	0.02 to 0.05
Sulphur	Trace.
Manganese	0.50 to 0.04
Nickel	25
Iron	74

Mechanical tests gave the following results:

1. On 15 mm. rounds, turned to 12 mm. diameter, a 200 mm. specimen, before annealing, tensile strength, 89 kg.; elongation, 19 per cent.; after annealing, tensile strength, 81 kg., and elongation, 29.5 per cent. Flats, 56 x 6 mm., tooled to 17 x 6, before annealing, tensile strength, 80.5 kg.; elongation, 40 per cent.; after annealing, tensile strength, 73.6 kg.; elongation, 33 per cent.

3. 26 mm. rounds, turned to 12 mm. diameter, without annealing, tensile strength, 87.9 kg.; elongation, 43.5 per cent. Rounds, 12 mm. of the diameter tested without tooling, without annealing, tensile strength, 69.2 and 72 kg., and elongation, 37 and 40 per cent., respectively.

The results of these tests led to negotiations with the Societe le Ferro-Nickel, who were owners of the patents and the Creusot, with the idea of applying the ferro-nickel to special work.

Cold Saw Cutting Off Machines.

There have been many experiments made in cutting metals by means of the large milling cutter or saw. The sawing of thin or light material, such as slotting the heads of screws and other light work, has always been done successfully. Beyond that little has been done in this country, although for many years saws of this description have been used in foreign countries. For some time the Newton Machine Tool Works of Philadelphia have been engaged in the design and construction of cold saw cutting off machines, and now have six sizes of standard machines and a number of special sizes.

Fig. 1 represents the No. 2 machine, which is of the same general design as the standard machines. The work is placed upon the table, which can be adjusted to bring the work in proper position for the saw to cut. The clamping apparatus can be drawn open on one side, the work laid on the table, when the clamp is swung back into place and clamped. The saw is a hollow ground milling cutter clamped to the end of the spindle and running in a bath which cools and lubricates it. The periphery of the saw always travels at the same speed. The automatic feed can be varied, according to the work to be done, from ⅛ inch to 2 inches per minute on all the machines. This is accomplished by means of a friction roller and plate. The pressure of the plate against the friction roller is automatically regulated according to the amount of power required to do the work. The thrust of the worm which drives the feed screw is taken up by the plate passing against the roller, and the heavier the cut the closer the plate will press against the roller. The feeding speed is regulated by moving the roller toward or from the center of the plate.

Fig. 2 shows a machine designed for cutting ship plates for shipbuilders, safe manufacturers and others. It will cut up to 4½ inches in hight and 8 feet long.

The armor plate machine shown in Fig. 3 is constructed upon the same general principles as the others, but is made

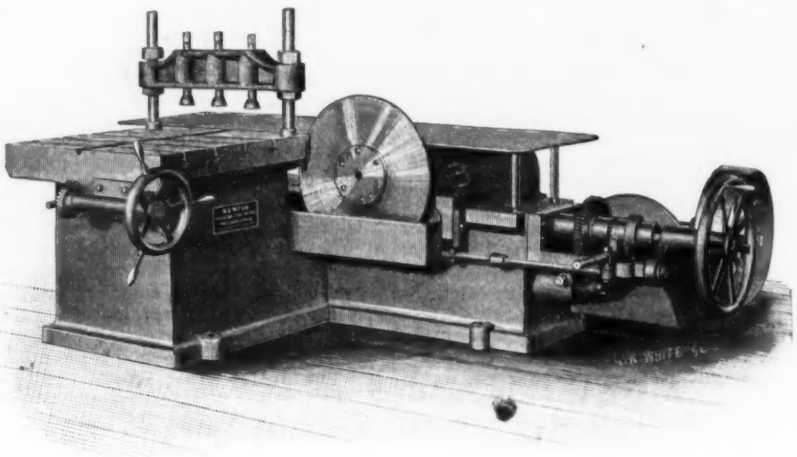


Fig. 1.—Standard Cold Saw Cutting Off Machine.

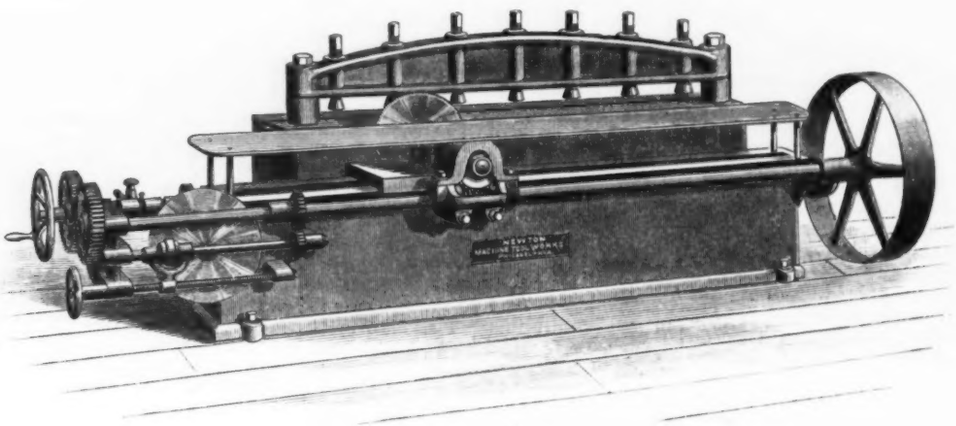


Fig. 2.—Cold Saw Plate Cutting Off Machine.

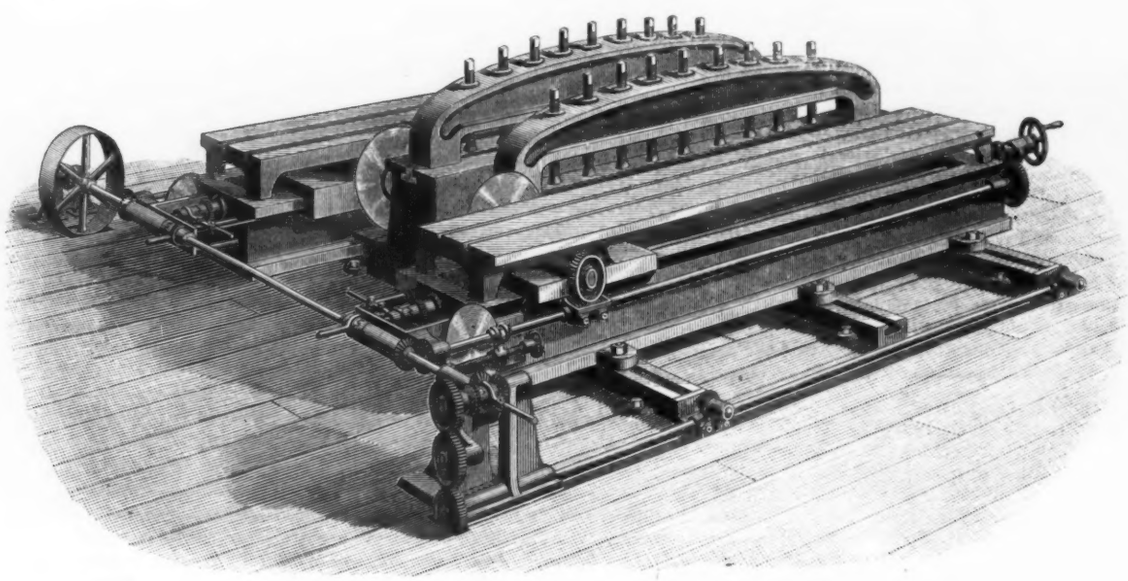


Fig. 3.—Armor Plate Cold Saw Cutting Off Machine.

COLD SAW CUTTING OFF MACHINES.

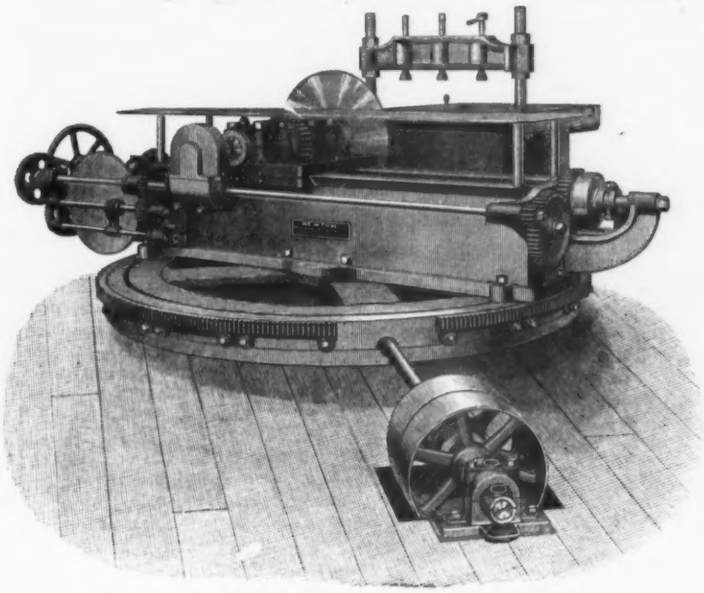


Fig. 4.—Revolving Bed Cold Saw Cutting Off Machine.

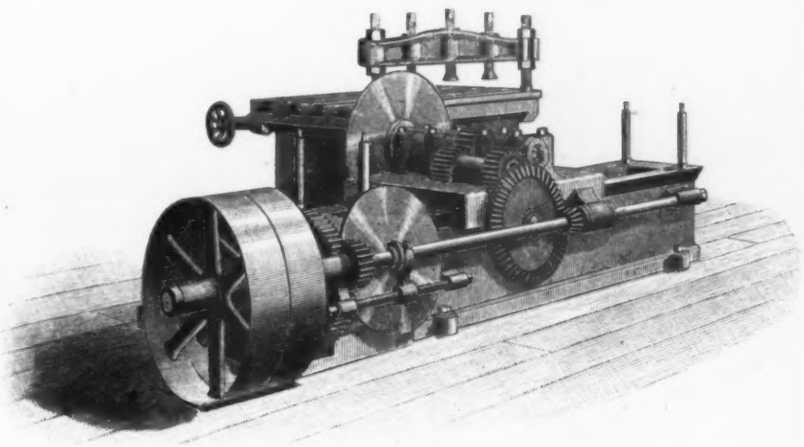


Fig. 5.—Stock Yard Cold Saw Cutting Off Machine.

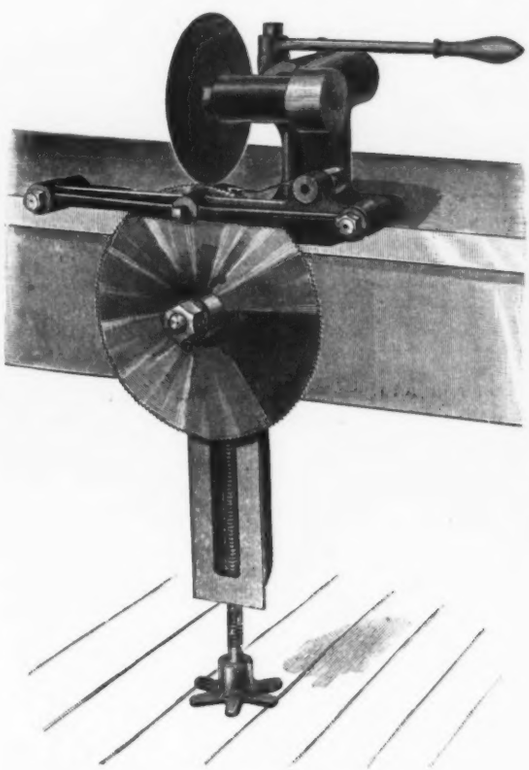


Fig. 6.—Saw Grinding Machine.

doubie, so that two edges can be cut at the same time. The armor plate coming from the mill has rough edges which must be trimmed down before it will be accepted by the shipbuilders. This tool will cut plate up to 10 inches thick and up to 137 inches in length. One bed is stationary and the other is adjustable on three rails to suit plates of different widths. In each of the tables are placed three rollers so mounted that, after the plate has been cut, they can be raised to support the plate, which can then be rolled off the machine.

The machine illustrated in Fig. 4 is intended for the use of bridge builders, structural iron works and others who have long beams to be cut off at different angles. This machine does not differ from the others except that it is driven from one point and is set on a revolving bed which allows the beam to always remain in one position and the machine to be swung round to whatever angle it is desired to cut the beam off. This tool can also be used as a rotary planer. The saw is fastened to the head by means of six countersunk screws, the head being screwed to the end of the spindle the same as the face plate of a lathe. This can be removed and an ordinary face milling cutter put in its place and the machine used as a rotary planer.

The stock yard machine shown in Fig. 5 was designed to take the place of the present high speed saws. It is claimed that it will do the work much cheaper and better, and that, as it does away with the high speed of the other, it will reduce the danger of breaking saws and the excessive wear of belts and bearings. An important item here claimed is the small amount of power required to operate the slow speed saw, this being about one-tenth that required to drive the quick speed saw.

The illustration Fig. 6 represents a simple saw grinder. As the saw is turned, tooth by tooth, the emery wheel is drawn across it and both the face and bottom of the tooth ground. A saw 18 inches in diameter can be sharpened in about three minutes.

Fig. 7 shows specimens of work done by these machines, which are now in use in some of the most prominent bridge, locomotive and steel works.

English Strikes.—A report on strikes in England last year has been made by J. Burnett, labor correspondent of the London Board of Trade, from which it appears that in 1889 strikes took place in

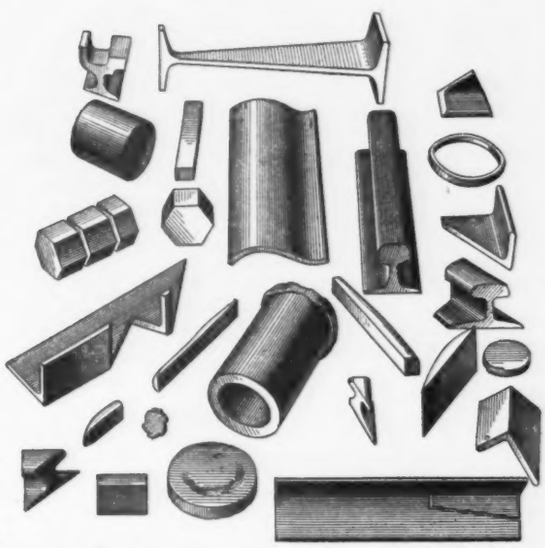


Fig. 7.—Specimens of Work Done on Cold Saw Cutting Off Machines.

COLD SAW CUTTING OFF MACHINES.

3164 establishments in that country. As in 1888, and due to the same reason—namely, a rising labor market—67 per cent. of the strikes were due to claims for advanced wages, although in some cases there were other points of dispute involved. Of those for advances in wages, 48.3 per cent. were successful. The proportion of those partially successful was 31.5 per cent.; 10.7 per cent. were not at all successful, and the results were unknown in the remaining strikes. Of the financial aspect of strikes some interesting particulars are given. Taking 597 of the strikes, the loss of wages is estimated at £652,000, while the loss to each individual would be a little over £3. 5/. For 930 of the strikes the loss for the 344,840 persons engaged is taken at £1,122,500. In 216 instances it is shown by employers whose men have been on strike that the value of fixed capital laid idle was £14,450,962; while in 162 instances the ratable value of property laid idle was £268,684. In 233 strikes the estimated outlay caused for laying down and reopening the works on strike was £169,219. On the other hand, the returns sent in by trade unions show that in 369 strikes the amount expended in support of men by strike committees or trade unions was £63,636. The returns also show that in 446 strikes the weekly wages earned before the stoppage amounted in the aggregate to £153,504; while the estimated loss of wages in 292 of these strikes was £294,175.

Labor Saving Machinery.

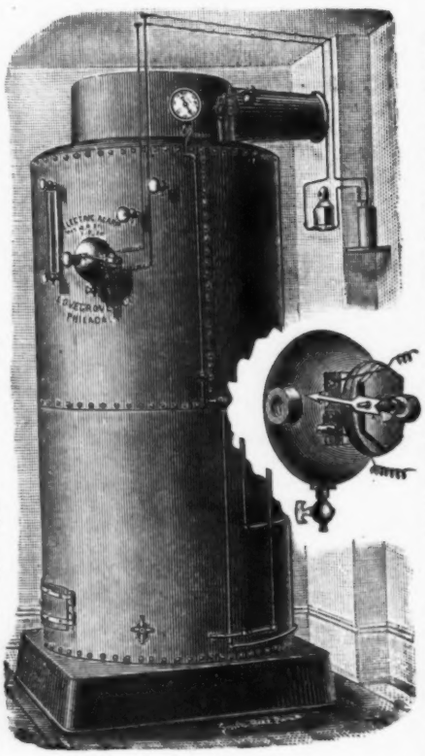
In opposition to Powderly, who is reported to have made a fiery attack upon labor saving machinery in an address to the Farmers' Alliance, at Ocala, the Chicago *Tribune* volunteers a vigorous defense. He spoke of "defrauding workmen of the right to work," &c. The editor says:

Imagine a man talking thus to an audience made up chiefly of Southern planters who, but for the cotton gin, instead of producing yearly 8,000,000 bales of cotton, would not grow 500,000. It is owing to labor saving inventions that the cotton seed, which the planters used to throw away or burn up, has been converted into a commercial product which yields the South over $20,000,000 yearly. Hydraulic cotton compressors, by reducing the bulk of the bale of cotton, whether shipped by sea or land, have lowered the expenses of transportation so much as to make a saving of from 1 cent to 2 cents a pound. Imagine the feelings with which the Western Alliance farmers from Kansas, Nebraska and the Dakotas must have listened to the Chinese anti-labor-saving harangue of the head of the Knights of Labor. These men know that their farms would be valueless to them were it not for steel prairie plows, for twine-binding reapers, mowers, power threshers and cleaners, and scores of other implements, and—most important of all labor-saving devices—a well-equipped railway to carry the products of their farms to a distant market. It is knavish of Powderly to talk as he does when he knows that the labor-saving devices of the last half-century, by increasing the productive power of the workingman, have added 50 per cent. or more to wages in this country and England, and nearly as much in Germany and France. They have increased the purchasing power of wages 50 per cent. because of the greater cheapness of commodities caused by them. Therefore they have doubled fully the rewards of labor, while lessening the amount of toil required of the individual.

The Burton Block, a well-known manufacturing building at the corner of Clinton and Van Buren streets, Chicago, was burned on the 17th inst., seriously inconveniencing a number of manufacturing concerns occupying rooms in it. The total loss is put at $100,000. This is the third time that the building has been burned.

Electric Low Water Alarm.

The electric low water alarm we present an engraving of is positive in its action, and its construction is such that there is nothing to get out of order. The alarm consists of a cylindrical casting, which is attached to boiler or water column by unscrewing the lower gauge cock and screwing in the alarm, after which the gauge cock is screwed in the casting and can be used as usual. The casting contains an improved float which is connected to the atmosphere through the stuffing box by means of the hollow rocker arm, to which the index is attached. This connection is



Electric Low Water Alarm.

a positive preventative of the float filling with water and becoming inoperative.

The alarm bell is an approved wood box bell which gives a clear and distinct sound. The battery is of the dry kind, and requires no charging or attention. The alarm can be attached to any style of boiler, either in the lower gauge cock directly into the shell of the boiler or into the water column. When in operation, as soon as the water is below the first gauge cock, the float and index fall, making the connection or contact, and causing the bell to ring, which will continue until the water reaches its proper level. This device is a new adaptation of the low and high water alarm made by Lovegrove & Co. of 143 North Third street, Philadelphia, Pa.

At a meeting of the stockholders of the Westinghouse Electric and Mfg. Company it was decided to issue $3,000,000 preferred stock. George Westinghouse, president of the company, submitted a statement of the condition of the company, based on figures furnished by a committee appointed to examine into the affairs of the company. The report stated that the assets are $6,280,000 and the liabilities $3,642,045.97. The money derived from the sale of the preferred stock will serve to pull the company through the present stagnant state of business. The capital stock of the company is $10,000,000, of the par value of $50 per share. It was decided to vote on the motion of issuing the $3,000,000 worth of preferred stock by ballot. One hundred and two thousand four hundred and thirty-five shares voted in favor of the issue and 135 against it. The report of the number of lights and stations controlled by the company was as follows: Number of central stations, direct current arc, 71; number of central stations, alternating current arc, 66; number of central stations, incandescent, 357; number of central stations that have increased their capacity since they started, arc stations, 17; incandescent, 101; total light capacity, direct current arc, 5280; alternating current arc, 5510; incandescent, 651,300; number of street car motors, 407.

Co-operative Stores in the Coke Region.—It is announced that the United Mine Workers of the Connellsville coke region are about to begin a movement for the establishment of co-operative stores. The plan proposed is the organization of a company with a capital stock of $25,000, to be used in the erection of a general store building, from which branch stores located at all points throughout the region will secure their supplies. The sum of $2000 has already been subscribed by the miners at one plant located near Scottdale, Pa., where there is plenty of land, and where good railroad facilities are offered. Should this organization of a co-operative company in the coke regions be successfully effected, and the advantages of such a system be made fully manifest, the miners of the other coal and coke regions will also form companies on the same basis. Business is to be commenced next February, or after the annual agreement with the operators has been formulated.

The Illinois Steel Company of Chicago have just issued a very complete book of rail sections, comprising 68 pages. The actual size of each section is given, together with the dimensions of its various parts. In connection with the cuts of special patterns appears the name of the road for which they have been designed. The lightest section shown is that of a 30-pound rail and the heaviest 90 pounds, but the company state that they are prepared to furnish rails of any section from 8 to 100 pounds. A greater variety of patterns is shown of the 56-pound rails than any others, namely 12. The 60-pound rails come next with 11 patterns. Of 52-pound rails there are 6 patterns. Of 65, 70 and 75 pound rails there are 5 patterns each. The 85-pound sections shown are used by the Pennsylvania and the Burlington roads. The 90-pound section was rolled for the Chicago and South Side Rapid Transit Railway Company, now building an elevated road for city passenger service. Sections of tram rails are also shown, as well as a street girder rail of the Illinois Steel Company's standard. A page of interesting information about track materials gives the quantity of each class of materials required to lay a mile of track. The general offices of the company are on the tenth floor of the Rookery, Chicago. Julian L. Yale is general sales agent. The New York offices are at 46 Wall street.

An explosion of gas under the skylight of Cornelius Vanderbilt's art gallery, on West Fifty-seventh street, carried away a portion of the roof and threw fragments of pipe and sheet iron as far as the entrance of Central Park, two blocks distant.

Car Scale.

One of the most difficult problems which railway managers have had to contend with is the devising of some method by means of which the actual weight of the load carried on each car could be obtained at any point on the line. The main considerations were accuracy and rapidity, while, of course, simplicity of construction and durability were prominent features. Attempts to weigh the cars of a moving train as the train passed over stationary scales have not given satisfactory results, owing mainly to the impact of the wheels as they struck the platform, and which, of course, varied widely. The accurate weighing of the load carried by each car is of the utmost importance, since it is now well known that railroad companies transport more freight than they receive pay for owing to overloading and again, the difficulty of weighing the cars without more or less interfering with traffic.

The drawing here presented represents a device which is a radical departure from the usual custom, since each individual car carries its own scale, which is supported from the bottom of the car body, and



Fig. 1.—Elevation of Half of One Side of Scale.

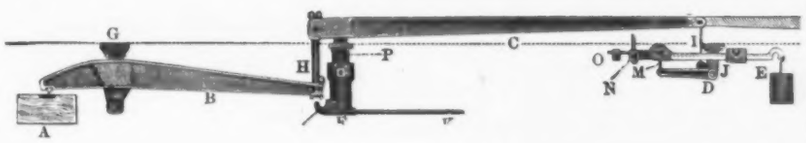


Fig. 2.—Sectional Elevation of Half of One Side of Scale.

THE WANAMAKER CAR SCALE.

which in turn is made to raise the car body clear of the trucks, and as the car body balances the scale the reading on the scale beam shows at a glance the net weight of the load within the car. It is evident that this reading can be obtained at any and all times, when the cars are not in motion, by the simple movement of the hand. This device is the invention of C. B. Wanamaker of Indianapolis, Ind., and may be described as follows: This scale is composed of a system of compound levers, similar to an ordinary platform scale, so arranged as to lift the body of the car free from the trucks by means of hydraulic jacks and take the weight on the levers.

The drawings, Figs. 1 and 2, are views of one-half of one side of the scale, one-half in section and the other half in elevation, the other side being a duplicate except the lever D and the scale beam E. Fig. 1 shows the parts in the positions they occupy when not in use, and Fig. 2 the weighing position; A A cross section of the truck bolsters; B B the main levers; C C the second levers; D the third lever, which is composed of a shaft having four short arms and one long one, placed across the car near the center; E the scale beam, inclosed, along with a small force pump and tank of oil, in a box at one side of the car near the middle; F F the hydraulic cylinders bolted to the sills of the car and fitted with the pistons P P; the upper ends of these pistons form bearings for the levers C; G G the supports and bearings for levers B, bolted to the sills of the car.

All the levers of the scale are fitted with hardened steel knife edges, which when weighing rest on hard bearings. The operation of the scale is as follows, the several parts being in position, as shown in section in Fig. 1: By working the pump oil is forced through the pipes K into the cylinders F, raising the pistons P and with them the levers C. These levers are connected by the links H to the long arms of the levers B. As these are raised the knife edges in the short arms of the levers B come in contact with the plates on the bolsters A. Continuing the upward motion the second knife edges on the levers B come into contact with bearings in the lower ends of the standards G; the further motion of the levers raises the car off the trucks, the distance it is raised being limited by the stops in the cylinders F; the long arm of each of the levers C is connected by the links I to one of the short arms of the lever D, which is raised to its bearings in the standards J; the long arm of the lever D is connected by the link M to the scale beam E, which takes its bearings in the standard N attached to the under side of the top of the scale box. This scale beam has an adjusting poise, O, a sliding poise, counterpoise and movable weights. The pump has a relief valve by which the pressure in the cylinders F is limited to that necessary to lift and hold the maximum load and prevent damage by the application of too much muscle to the pump handle; this valve is also connected to the door of the scale box in such a manner that on closing the door the oil is let out of the cylinders and returns to the tank, allowing all parts to assume their normal positions, the pistons descend, the car body follows until it rests on the trucks; the levers fall away from their bearings on the standards G into supports attached to these standards; the short arms of the levers B leave the bolsters A, the lugs on the long arms of the levers B drop into hooks L on the cylinders F; the links H rest on the backs of the knife edges in the long arms of the levers B; the backs of the knife edges in the short arms of the levers C rest on the links H, the pistons fall away from the second knife edges in the levers C, the knife edges in the long arms of the levers C rest on their backs in the links I, which rest on the back of the knife edges in the short arms of the lever D, the shaft of the lever D rests on the bottom of openings in the standards J; the back of the knife edges in the long arm of the lever D hangs in the lower end of the link M, which hangs on to the back of the second knife edge in the scale beam, the back of the knife edges in the short arm of the scale beam rest on the bottom of openings in the standard N, the outer end of the scale beam rests in a movable support (not shown) fastened to the top of the scale box, and connected to the door in such a way as to allow the counterpoise to drop into a recess in the bottom of the scale box and free the knife edge on which the counterpoise hangs when weighing. Thus all the knife edges are not only relieved of the weight of the load and the parts of the scale, but they are removed from contact and cannot be worn or injured by the jarring of the car when in motion.

Coal versus Gas in Pittsburgh.

A special correspondent of the Pittsburgh *Dispatch* presents data relating to the situation in Pittsburgh on the fuel question.

According to recent reports, there are 14 mills here (not including McKeesport) that have changed back to coal in the puddling furnaces, although in two of these some of the furnaces are yet working on gas. In these mills there are 454 puddling furnaces, while the total number of furnaces in Allegheny County, including McKeesport, is 1152. At the National Tube Works Company, McKeesport, every department of the four rolling mills is again using coal. About 15,000 bushels are being consumed daily. The company intend erecting a coal elevator on the river bank near their works, in order to transport the coal from the barges to the mills. They recently erected at their No. 4 mill 15 double puddling furnaces, and these will now have to be torn down, owing to their not being adapted to the use of coal; either natural or artificial gas must be used in these furnaces.

At the Clinton Mill, on the South Side, five double puddling furnaces are standing idle, while the single furnaces are using coal. At the Republic Iron Works, on Twenty-fifth street, South Side, they are still in a condition of gas shortage. The new puddle forge, consisting of 14 double puddling furnaces, will have to be torn down. The old forge, comprising 26 single furnaces, is back to coal, and a part of the finishing department is likewise back to coal. It is thought that the recent gas strike by Jones & Laughlin, whose mill adjoins there, will urge the Republic to try for gas. At Howe, Brown & Co.'s mill, on Sixteenth street, coal is being partially used. In the Millvale mill the puddling department is equivalent to 36 single furnaces, but only 21 of these are built single. At this mill there are two quadruple furnaces, being about the only furnaces of their kind about Pittsburgh. In one turn the total output of one of these furnaces is about 12,000 pounds, while of a single furnace it is 2500 pounds.

The Pittsburgh Forge and Iron Company are using coal in all their puddling and scrap furnaces, and artificial gas in their heating department. About 7000 bushels of coal will be required daily at this mill. At the Lockhart Iron and Steel Works, Chartiers, the puddling furnaces have been changed back to coal, as has also the puddling department in the Soho mill of Moorehead, McCleane & Co. Lindsay & McCutcheon and Chess, Cook & Co. are now using coal entirely. The consumption in these mills is almost 10,000 bushels per day. At Painter's mill, in the West End, 16 puddling furnaces in the new forge were on last week, and 44 off owing to the shortage of gas; in the old forge 24 furnaces are idle and under repairs to resume coal during the week. The firm is experimenting with the Archer process of fuel gas. It is understood that the La Belle Steel Works of Smith Bros. & Co., in Allegheny, also the United States Iron

and Tin Plate Company, Linden Steel Company, Duquesne Tube Company and the Pittsburgh Tube Company are experimenting on this process.

At the American Iron Works of Jones & Laughlin the puddle furnaces that were changed back to coal when the gas gave out are now being returned to gas, the company having struck two wells of their own that furnish them more than an ample supply of gas. The works are now running full in all departments, with the likelihood of continuing so throughout the winter. The old wells have been plugged and reserved for possible future use. In the Upper Union Mill of Carnegie, Phipps & Co., Thirty-third street, there is still considerable trouble on account of the gas shortage. During the last month the puddling department has been making only from two to three heats per turn, but the finishing department is working full, turning out about 275 tons of finished iron and steel per turn. At Oliver Bros. & Phillips, lack of gas has made it necessary to fall back on coal in the puddling department. Of 42 furnaces, 28 have been changed, as far as we can learn, and these are using the slack and cold blast process, which was the general fuel mostly used by this company previous to the adoption of gas. It is likely that superheated steam and slack will be generally used in the mill.

This is the same process as is used in the entire puddling department of the Vesuvius Mill, of Moorehead Bros. & Co. and the Kensington Mill, of Lloyd, Son & Co. This process is the newest substitute for fuel in puddling furnaces, and it is claimed its cost is only one-half that of gas. It is charged with slack coal, and the combustion is forced by the introduction beneath the grate bars of superheated steam. A water gas is produced by the decomposition of the steam. Park Bros. & Co., are building an 8 and 10rinch natural gas main from the Wildwood field to their Black Diamond Steel Works, on Thirtieth street, costing $80,000, in order to insure a sufficient supply for their works. It is thought that by the first of the year all the mills now undergoing a change to coal will be in a position to run steady. Operations during last month were greatly interrupted by the withdrawal of gas from the puddling furnaces, and the production of muck iron during the month was not over 36,000 tons.

Coking on Lake Superior.—The Lehigh Coal and Iron Company have started the fires in 50 new coke ovens at West Superior, Wis., and report very satisfactory results. The capacity of the West Superior coke plant is now 60,000 tons annually, and the Northwest furnishes an active market for the whole of it. The coal is shipped from Western Pennsylvania. Thus far this is the only coking plant on Lake Superior. The first ovens were built about two years since as an experiment, and at first only the slack coal from shipments of steam coal was used. This slack had formerly been considered waste, but the coke ovens in utilizing it made it as valuable as the lump coal and ultimately led to special shipments of coal for coking. The people of the Lake Superior iron country are deeply interested in the operations of this company, believing that in this way the problem has been solved of manufacturing coke pig iron in their district.

State Mine Inspector Tinslow reports to Governor Hovey 72 coal mines in 11 counties in Indiana, with a capital of $2,081,000, with an output of 8,076,000 tons, an increase over the preceding year of 573,500 tons. During the preceding year the block coal mines were seven months on a strike. The total number of miners is 6550. Air and electric machinery were introduced in a number of the mines during the year. The cost of mining ranged from 37½ to 70 cents, the average being about 60.

The Lead Ore Duty.

The following correspondence will explain itself.

TREASURY DEPARTMENT,
October, 30, 1890.

Sir: The Department is in receipt of a letter, dated the 15th inst., from Special Agent J. C. McCoy, in which he reports that it is the practice at your port in classifying ores imported from Mexico which may contain both silver and lead to only subject the lead contained therein to the payment of duty, it being alleged by him, as it is understood, that you construe the provision in Schedule C, paragraph 199, as imposing the duty of 1½ cents per pound only on the lead contained in such ores.

By reference to said paragraph you will find that it prescribes that lead ore and lead dross shall pay a duty of 1½ cents per pound with the proviso that "silver ore and all other ores containing lead shall pay a duty of 1½ cents per pound on the lead contained therein, according to sample and assay at the portof entry."

Under this paragraph the Department is clearly of the opinion that all lead ores—that is, ores where lead is the component material of chief value—shall pay a duty of 1½ cents per pound upon the weight of the ores as imported, without regard to the question of the quantity of lead which may be contained therein, and that the proviso imposing such duty of 1½ cents per pound on lead contained in silver ores, and all other ores, applies to ores composed of silver and lead, gold and lead, &c., where the lead is not the component material of chief value; in other words, that where silver ore is imported—that is, ore where silver is component of chief value—the duty of 1½ cents per pound is to be exacted on the lead contained therein.

You will cause your practice to conform to the views herein expressed.

Respectfully yours,
O. L. SPAULDING,
Assistant Secretary.

COLLECTOR OF CUSTOMS, El Paso, Texas.

TREASURY DEPARTMENT,
October 30, 1890.

Gentlemen: In reply to your letter of the 16th inst, the Department has to say that, under the existing tariff, paragraph 199, lead ore—that is, ore where lead is component material of chief value—is liable to a duty of 1½ cents per pound on its gross weight as imported into the United States.

With regard to silver and gold ores—that is, ores in which silver and gold are component materials of chief value, respectively—the lead contained therein is also liable to the duty of 1½ cents per pound, the quantity, however, to be ascertained according to sample and assay at the port of entry.

Respectfully yours,
O. L. SPAULDING,
Assistant Secretary.

MESSRS. CHAMBERLIN & PRICE, Minas Prietas, Sonora, Mexico.

Opinion of U. S. Attorney General Above Referred to.

DEPARTMENT OF JUSTICE,
WASHINGTON, November 19, 1890.

Sir: Your communication of the 8th inst. calling my attention to paragraph 199 of Schedule C of the Tariff act of October 1, 1890, and to the letter of Assistant Secretary Spaulding, of date of the 30th ultimo, to the Collector of Customs at El Paso, Texas, and to other inclosures, and to decisions of the Treasury Department, Synopses 4391, 7327, 7543 and 9662, and requesting my opinion as to the construction of said paragraph, was duly received.

Availing myself of the references and suggestions submitted, I have the honor to answer:

The tariff law of June 30, 1864 (13 Stats., 206) imposes a duty as follows: "On lead ore, 1½ cents per pound."

The act of March 3, 1883 (22 Stats., 500), in Schedule C, imposes a duty as follows: "Lead ore, and lead dross, 1½ cents per pound."

Paragraph 199 of the act of October 1, 1890, provides that there shall be levied, collected, and paid upon imported "Lead ore and lead dross, 1½ cents per pound: *Provided*, That silver ore and all other ores containing lead shall pay a duty of 1½ cents per pound on the lead contained therein, according to sample and assay at the port of entry."

The meaning most obviously suggested by a consideration of the language used is, that a duty of 1½ cents per pound shall be paid upon the commodity known as lead ore, and that a similar duty shall be paid upon that known as lead dross; while upon ores that are not known commercially as lead ores, and which yet contain lead of an appreciable value, a duty of 1½ cents per pound shall be paid—not upon these ores, but upon the lead which sample and assay shall show them to contain.

A construction which makes "all other ores" in the proviso cover "lead ore" of the first line, would render the first line meaningless as to lead ore, or would place the same rate of duty upon lead twice in the paragraph.

Under the law of 1883 lead ore, as such, bore the same duty as dross, as such. If only the lead which may be extracted from this ore is now dutiable, then it follows that lead ore and dross have been separated without an express purpose to do so, or that it is only the lead which the dross contains that is dutiable.

In order to discover the intent of Congress in this enactment, it may be instructive to consider the rulings of your Department in relation to the subject matter.

Under date of January 14, 1880 (Synopsis 4391), it is decided as to certain ores claimed to be entitled to free entry from Mexico as silver ore that "the value of the silver contained in the ore being largely in excess of the value of the iron, the Department is of the opinion that the ore is entitled to entry free of duty as 'silver ore.'"

No one denies that Congress by said act of March 3, 1883, placed a duty of 1½ cents per pound on lead ore and lead dross.

Under date of January 25, 1884 (Synopsis 7327), the assistant secretary decides:

"That when silver in any ore predominates in value it is considered to be silver ore, and as such is exempt from duty under the special provisions in the free list for ores of gold and silver; where, however, lead predominates in value the ore is considered as a lead ore, and is subjected to a duty at the rate of 1½ cents per pound under the special provisions in the Tariff act for 'lead ore and lead dross.'"

Under date of May 27, 1886 (Synopsis 7543), the Acting Secretary of the Treasury decides: "That ores composed of silver and lead and iron, or silver and lead, or silver and other base metals, of which silver is the component material of chief value, would, under the ruling of January 25, 1886 (Synopsis 7327), be exempt from duty under the provision in the free list (T. I., new, 752) 'for ores of . . . silver.'" "It is immaterial, in the entry and classification of such ores, whether the ores are imported for use as fluxes in the fusion of other metals or on account of the metals themselves."

Your circular of October 18, 1889 (Synopsis 9662), reviews and approves these rulings, and holds that ores known commercially as ores of silver, although containing lead in appreciable or considerable quantity, are not dutiable under the law of 1883; and that it must be assumed that the rulings and practice of the Department were known to Congress when it passed that act, and that it must be held that the designation of lead ore and silver ore in the tariff in the absence of legislative definition was that of existing decisions.

In view of these instances of official construction Congress enacted the provisions of the act of 1890, above quoted. It is not reasonable to suppose that without employing words clearly indicating a purpose to do so, the classification was changed from "lead ore" to "ores containing lead," while re-enacting in the leading portion of the paragraph the words of the provision of the act of 1883.

Nor can it fairly be inferred, without words plainly showing such an intention, that the duty was dropped from 1½ cents per pound on lead ore down to the same rate on the lead contained in the ore.

The language which Congress has deemed it proper to employ where it intended to place a duty only upon the metal that an ore contains is shown in the paragraph relating to.

copper, where the following words are used (paragraph 191): "Copper imported in the form of ores, one-half of one cent per pound on each pound of fine copper contained therein."

The rules of statutory construction forbid the conclusion that it was the legislative design to make lead ore dutiable only upon the lead contained therein without the use of the same or equivalent language.

In my opinion it is manifest that the words "all other ores," as used in the proviso of paragraph 199, mean all ores other than those designated by the words "lead ores," construed according to the commercial usage and departmental decision.

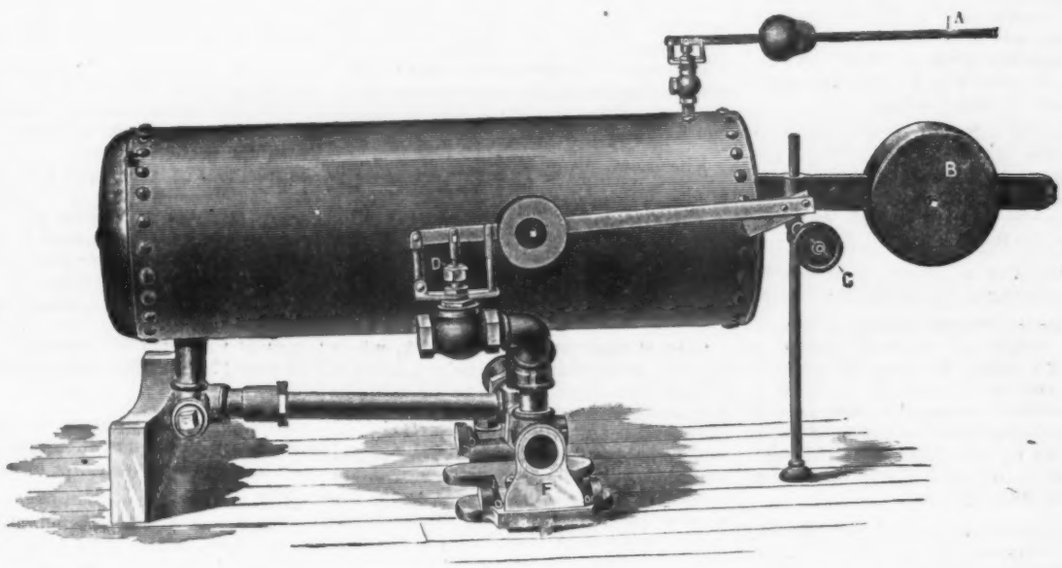
I therefore hold that imported lead ore is dutiable at the rate of 1½ cents per pound without regard to the amount of lead which the ore may contain.

W. H. H. MILLER, Attorney-General.

THE SECRETARY OF THE TREASURY.

Automatic Steam Trap.

This trap is intended for returning condensation to the boiler or to the tank. When used for returning the water direct to the boiler, the trap is located at a point above the water level. The steam pipe D, leading from the dome of the boiler,



AUTOMATIC RETURN STEAM TRAP.

connects with the inlet pipe between the check valve F and the inlet chamber. In each of the inlet and outlet pipes is a check valve. When the trap has filled sufficiently to tilt or dump, the valve D opens, admitting steam from the boiler to the top of the water, closing the check valve in the inlet pipe, and forces the water through the outlet pipe past its check valve into the boiler. When the water has run out sufficiently to allow the trap to resume its normal position, the valve D closes, and the boiler pressure closes the check valve in the outlet pipe and the return pressure opens the check valve in the inlet pipe, when the trap refills. The trap for discharging condensation to the tank depends mainly on gravity, and is said to be the only gravity trap made.

This trap, which is made by the Huyett & Smith Mfg. Company of Detroit, Mich., works principally on the weight of water it receives, the varying of the steam pressure being of no consequence, since the trap tilts over one-third before it strikes the valve lever, thereby overcoming the pressure on the valve.

The Montana Consolidated Tin Mining Company, recently incorporated under the laws of Illinois, with an authorized capital stock of $2,000,000, propose to work deposits of tin ore discovered in Montana. These deposits lie along the Madison River in that State, and are said to possess superior advantages for cheap mining and milling. Excellent water power is available, and coal mines are within easy reach, the property lying within ten miles of a railroad. A projected railroad line runs through the company's grounds. The mines have as yet not been sufficiently developed to establish the exact character of the ore, but excellent samples are shown by the projectors of the enterprise. The incorporators are William T. Cessna, Miner Walmsley and James P. Tillotson.

The famous Verrugas Bridge in Peru, built to replace the structure destroyed by flood a year ago, was opened for business on December 17. This is a wrought iron bridge built of materials constructed by Cooper, Hewitt & Co., at their works in Trenton. It is of the cantilever type, is 575 feet long, and at its middle point is 252 feet above the bottom of the valley which it spans. It is supported on two iron towers, and the suspended span is 105 feet long. This bridge is a portion of the Central Railway of Peru, formerly known as the Oroya Railway, which starts from Callao on the Pacific Coast and terminates at Chicla, a mountain city of the Andes, 12,300 feet above the sea level, and 87 miles distant from Callao. The Verrugas bridge is essentially an American structure. It was designed by an American engineer, L. L. Buck of this city, and American laborers, sent out from this city, put the bridge in position.

The Pittsburgh Reduction Company of Pittsburgh, manufacturers of pure aluminum, have cast two cylinders of aluminum bronze to be used in testing that material with reference to its fitness for making guns to throw projectiles filled with explosives. These cylinders were made for Doctor Emmens. They are 8½ inches long, with a bore of 1¼ inches, and the walls are 2 inches thick.

On an appeal on brass chains from duty assessed at 45 per cent. while the appellants claim that the chains should have been classified at 35 per cent., copper being the component of chief value, the appraiser says that the law provides for all manufactures of copper, or of which copper shall be a component of chief value, not specially enumerated, 35 per cent.; also provides for manufactures wholly or in part of copper, not specially enumerated, 45 per cent.; also provides that "if two or more rates of duty should be applicable to any imported article, it shall be classified under the highest of such rates." The decision is affirmed.

Trial of the Newark.

The official trial of the cruiser Newark was completed last Tuesday. Her average revolutions during a four hour trial were 126.8 per minute, giving a speed of 19.54 knots per hour. As in the two preceding trials the Newark's steadiness was noticed by all on board. Under her bows the water divided in two great waves that continuously foamed up to the hight of her hawse pipes, but while she carried so large a bone in her teeth, as sailors say, the run of water along her side and under her counter was very clean and easy. One of the noticeable features of the trial was the regularity and smoothness with which the engines ran. Not a bearing heated and not a single break of any kind took place in even the minor machinery. After the four hour run the afternoon was devoted to testing the quickness with which the ship could be stopped and backed while traveling at full speed and also to show her steering and turning capabilities. A complete turn was made in four minutes and 45 seconds. One minute and 35 seconds covered the time from going ahead full speed to going astern full speed. The latter movement, ordinarily a great strain upon engines, was accomplished without even starting a rivet. After the turning trial the ship steamed back to Delaware Bay and anchored inside the Breakwater.

Orders have been given by the French Minister of War for the construction of ironclad light towers for use in the fortresses along the banks of the Maas. The light will be supplied by a powerful arc lamp with fixed focus, and the approach of an enemy at night without detection is thus rendered impracticable. The dynamo will be driven by a gas engine, and the cupola of the towers will be so made that instantaneous elevation or depression can be effected from different points of the fort. The projectors as well as the men working them will be protected by steel armor

THE WEEK.

A Findlay, Ohio, correspondent confirms the report that the gas fields in that region are rapidly failing. As the investments in lands, leases, and wells since the discovery of natural gas were very heavy in that section of the country, the fact is regarded as serious. In Pennsylvania and Indiana the same indications are noticed, despite the search for new territory. Although Findlay will have gas for years to come, it is feared that the "big gushers" are now things of the past. The tendency of wells to change to oil suggests the probability that crude petroleum will eventually be manufactured into gas as a substitute. It is being introduced in iron manufacture with satisfactory results.

Railroad time by fast trains between New York and Boston will be reduced next spring to five and a half hours, and provide for rapid mail transportation.

The National Wheel Company, or "Wheel Trust," as it is sometimes called, was formed about a year ago, with a capital of $3,000,000. Recently prices have been twice advanced, in the first instance 10 per cent. and then 80 per cent., so that carriage builders speak of "starving out" the trust, by refraining from buying goods for a certain limited period.

The West is still calling for more immigrants. The St. Paul Chamber of Commerce last week resolved to diffuse information with the object of attracting to Minnesota the current which has been flowing to the Southwest.

Newburg has a newly organized ice machine company, with $500,000 capital.

The Canadian Pacific Railway is endeavoring to obtain an Atlantic outlet at the port of Castine. To succeed they must build several short lines of railroad in Maine, besides making arrangements with the Maine Central for the use of their tracks and buying up the Bangor and Piscataqua road, in which the city of Bangor has a controlling interest.

After a protracted contest the Reading Railroad Company have secured the right to improve their terminals in Philadelphia by building an elevated extension to a central part of the city. The estimated cost of the work exceeds $7,000,000.

The attendance of nearly 3,000,000 pupils in the public schools of Japan indicates the progressive spirit of the empire.

The foreign money order business of the New York Post Office during the first two weeks of December amounted to $1,450,000.

Electric street railway service between St. Paul and Minneapolis is now in full operation—time, 50 to 60 minutes.

St. Paul citizens propose to inaugurate a boom that shall promote the manufacturing interests of the town.

Wisconsin Patrons of Husbandry, influenced by the example of Manitoba, favor a State twine factory.

The Norwegian steamship Bratsburg is now loading at New Orleans a cargo of machinery for Port Elizabeth, Africa.

The gross receipts of seven New York racing associations during the season were $582,000, of which 5 per cent. goes to the State Treasury at Albany.

John Haug, marine architect, of Philadelphia has designed for the Standard Oil Company a number of steel barges, to be used in carrying oil in bulk between that port and Boston. They will be 120 feet long, 30 feet beam and 10 feet depth of hold, with a carrying capacity of 250,000 gallons of oil. The barges will be towed by steamers in the same manner as coal barges are now towed between the two ports.

Respecting the future of the American commercial marine there are very few who can dissent from the opinion expressed by the New York *Tribune* and *Sun* alike. Our new cruisers give evidence that American shipbuilders are able to rival, if not to surpass, the best work of European builders. They ought to be the forerunners of a squadron of American merchant vessels, built in American yards and foundries, built of American steel and iron, built by the industry of America's workmen, built for the service of American commerce, built to be launched from American wharves, and to sail under the American flag.

The Mexican State of Tabasco has exempted from State and municipal taxation for five years manufactures and industries that may be established on its soil for the first time. Machinery intended for use in the favored industries is to enter the State without payment of duties.

The Bureau of the American Republics has been established at Washington, with headquarters at the Department of State. The bureau will disseminate useful information concerning the commercial condition and advantages of the several American republics.

The new revenue cutter Galveston, plated with iron $\frac{7}{16}$ to $\frac{1}{2}$ inch thick, was launched at Baltimore last week. She is 186 feet between perpendiculars, 30 feet beam and 12 feet depth of hold. Her displacement is 600 tons, and she has double compound engines with cylinders 16 and 30 inches in diameter.

Colonel Auchmuty of New York, whose success in establishing trade schools is well known, in an address to the business men and merchants of Springfield, Mass., last week, said, with special reference to the plumbing business: "The trades union have attempted to restrict apprenticeships, making the terms long, the number limited, the work disagreeable and unproductive; thus, there is need of some influence to do away with this tyranny. The trades school graduate is liable to persecution for a short time, but the unions for self protection must ultimately admit him to membership. The trade papers which are not union organs are in sympathy with this manual training in New York. The fact that so few high school graduates become mechanics by no means proves that high school education unfits a young man for a trade. It only shows the results of seeking to make a couple of years of drudgery, which can only be done by boys too young to object to it, a preliminary to a trade. The success of the New York Trade Schools had proved that this prejudice against manual labor does not exist on the part of the educated. In the students 31 out of the 44 States in the Union are represented, many coming from distant points at considerable expense to secure the education."

The Howards, at Jeffersonville, Ind., are putting in the machinery for their new steel plant for building river boats.

Preparations for improving the ferry crossings of the river separating New York and New Jersey are yet in their early stages, but are advancing vigorously. One of the ferryboats, with an elevated passenger deck to correspond with the proposed elevated bridges and rail tracks on either side, is already running, and others are building or are in course of adaptation to the improved plan. The keel for a double decked steel ferryboat for the Pennsylvania Railroad has been laid by Samuel L. Moore & Sons Company, at Elizabeth, N. J.

The manufacture of sorghum sugar in this country now promises to become a profitable industry, as a result of experiments in the chemical laboratory of the Department of Agriculture. The success claimed consists in separating "gummy amorphous bodies" without precipitating the sugar, and doing this at a trifling cost.

During the last three years British capitalists have placed, in new securities and forms of investment not before on the market, £540,000,000, or nearly $2500,000,000. For the first ten months of the current year, according to the London *Economist*, these investments reached the enormous sum of $680,000,000. These were in addition to the capital put into the securities already existing and known to investors. The greatest portion of these outlays was not for permanent possession. The promoters of the new schemes at any rate only brought them forward to saddle them upon the public; and most of those who accepted the offer simply took them at a "bargain" to turn them off upon others at the expected advance. This is a type of what, in a lesser degree, has taken place on this side of the water.

Mayor Manning of Albany, while speaking of the effort to deepen the channel of the Hudson River, declared it to be a fact that the traffic on this river, even with its present capacity, is more than double that of the Ohio, the Mississippi and the Missouri rivers combined. While many millions of dollars have been expended upon the last-named rivers during the last 50 years, a mere pittance only has been doled out to the Hudson by the general Government. The largest appropriation for the Hudson by the Federal Government was $335,000, and the total from the year 1797 to 1890 has been $1,461,420 only.

Merchants and bankers in Chili have subscribed $5,000,000 to establish an opposition line of steamships on the Pacific Coast.

The monster four masted clipper ship Shenandoah, at this port from Bath, Me., to load for San Francisco, is nearly three times as big as the Yankee record makers of 30 years ago. The Dreadnaught, which made the fastest voyage of any sailing vessel to Liverpool, measured only 1200 tons. The Shenandoah measures 3409 tons gross and 3258 tons net. She is 325 feet long over all, 308 feet on the water line, 49 feet wide, and 29 feet deep. She draws 27 feet, or about as much as the City of Paris. Her carrying capacity is 5000 tons, or more than some of the largest freight steamships. She has a steel bowsprit, weighing 13 tons, and no jibboom. She is constructed of oak, and was launched from the yards of Arthur Sewall & Co., at Bath, in November.

The Customs Commission at St. Petersburg have decided to increase the duty on agricultural machinery and implements 40 per cent.

The "most favored nation" clause operates as a bar to the Dominion in seeking better trade relations with the West Indies, as she desires to have her goods admitted at a lower rate of duty than the tariff upon productions of other countries. Therefore, efforts are being made to induce the Commercial Treaties Committee of the Imperial Board of Trade to have the objectionable article in the Belgium and German treaties expurgated. These clauses give Germany and Belgium the right to demand as good terms from any British colony as that colony gives to any other British colony. The time for which the treaties run has about expired.

MANUFACTURING.

Iron and Steel.

Emaus Furnace, at Emaus, Lehigh County, Pa., now under lease to Robert H. Coleman, has recently been extensively repaired. It will probably go into blast shortly after the first of the year.

A 76,000-pound casting was successfully made at the ordnance works of the Bethlehem Iron Company, Bethlehem, Pa., recently. The casting is to be used in the construction of the new armor plate mill.

The Topton (Pa.) Furnace has gone out of blast to make repairs, and will be idle about three weeks.

Falling Spring Furnace, at Chambersburg, Pa., blew out on December 17, and will remain idle for four or five months.

The affairs of the Paducah Iron Company, Paducah, Ky., are under litigation. W. H. Hayes, the former president of the company, recently brought suit to recover back salary.

The Napier Iron Company, at Henryville Tenn., have awarded the contract to Stein & Schwarz of Philadelphia, Pa., for the erection of a 12 x 60 foot blast furnace.

At Knoxville, Tenn., the Knoxville Iron Company have recently added two puddling furnaces.

The Twin City Iron Company, with a maximum capital stock of $200,000, have been incorporated at Front Royal, Va., to open iron mines and erect and operate a furnace.

The Tallapoosa Furnace Company are preparing to erect another stack 11 x 60 feet, and enlarge their cast house.

The North Carolina Steel and Iron Company's directors recently held a meeting at Greensboro, N. C., and decided to award a contract at once for the erection of a 120-ton iron furnace.

The South Tredegar Rolling Mill, at Chattanooga, Tenn., closed down last week, pending negotiations for the sale of the plant. It is stated that a $600,000 company to be known as the South Tredegar Iron Company of Cardiff, Tenn., is being organized by Eastern parties for the purpose of purchasing the Tredegar Mills and moving same to Cardiff. It is stated that the sum of $306,000 will be paid for this plant, and that it will be improved and enlarged. A basic steel plant that is to cost $250,000 is to be built and operated by this new company, and a nail mill will also be established.

A receiver has been appointed to take charge of the business of the Henderson Steel Company of Birmingham, Ala., on the petition of one of the directors.

The Southern Malleable Iron Works, at Chattanooga, Tenn., is nearing completion. The company expect to have the building under roof by the end of this month and have the foundry in running condition by the middle of January. Charles A. Barer of Cincinnati, Ohio, will have charge of the foundry. The president and general manager of the company is Charles Heron, and P. A. Browner is secretary and treasurer.

The Principio Forge Company have been incorporated at Wheeling, W. Va., by W. P. Tyler of Washington, Pa., N. E. Whittaker, C. E. Ewing and others.

Parties at Selma, Ala., are endeavoring to organize a company for the purpose of establishing a cotton tie factory.

Fairchance Furnace, of the Fairchance Furnace Company, at Fairchance, Pa., has been closed down for an indefinite period on account of the present dullness in the iron market. It will resume blast again when the condition of the market warrants resumption.

The plate mills of the Lukens Iron and Steel Company, at Coatesville, Pa., are not only the largest east of the Alleghenies, but are the oldest in the United States, and since 1810 have been continuously operated by the Lukens and Huston family. The mill, besides being the largest, also turns out larger plates than any mill in the country. During the past week they turned out plates ⅝ inch thick and 108 inches wide by 300 inches long, weighing 6500 pounds each.

The Canonsburg Iron and Steel Company of Canonsburg, Pa., with branch office at Pittsburgh, have decided to greatly enlarge their capacity. The firm manufacture sheet iron and steel for stamping purposes and galvanizing. Their present capacity is about 4000 tons per year.

The statements published in some of the Pittsburgh papers last week to the effect that men employed at the Edgar Thomson Steel Works of Carnegie Bros. & Co., Limited, at Braddock, Pa., were dissatisfied with the present scale of wages and would demand a new one is without foundation. The scale of wages now in force cannot be annulled unless a 30 days' notice is given by either side, and no such notice has as yet been served by the employees.

An addition is being made to the forge department of the La Belle Iron Works of Wheeling, W. Va. It is 28 x 45 feet in size and will be used for the plate shears.

The output of the plant of the Ætna Iron and Steel Company, at Bridgeport, Ohio, for the past month has been over 3000 tons of finished sheet iron and steel, the largest in its history. The firm contemplate making some extensive improvements in the near future. At present they are adding a new sheet train built for them by the Leechburg Foundry and Machinery Company of Pittsburgh.

The Pottstown Iron Company of Pottstown, Pa., have posted notices of a reduction of 25 cents per ton in the wages of puddlers, and a proportionate reduction in the wages of all employees in their plate and puddling departments.

J. W. Wilkes, formerly connected with the Sharon Iron Company, at Sharon, Pa., will probably build a small mill at that place for the manufacture of muck iron. It is said that nearly the entire amount of money has already been subscribed.

The Pittsburgh Portable Forge Company, recently organized in Pittsburgh, have commenced the erection of their plant on Smallman street, in that city. In addition to forges they will manufacture railings, gratings and steel barrows.

Furnace G, of Carnegie Brothers & Co., Limited, at Braddock, Pa., was blown out last week for relining and repairs.

Riter & Conley of Pittsburgh have secured a contract for the erection of three 18 x 70 fire brick hot blast stoves and an iron chimney 10 x 150 feet for Swede Furnace No. 2, now being erected by Richard Heckscher & Sons at Swedeland, Pa. The first named firm have recently made the first shipment of material for the new blast furnace of the Colorado Coal and Iron Company of South Pueblo, Col.

The nail factory of the Riverside Iron Works of Wheeling, W. Va., resumed operations last week after being idle since September last. The principal reason for shutting down for so long a period was that the foreign orders for steel, deliveries running up to January 1, engaged the capacity of the steel plant and left the factory without a supply of nail plate. The figures at which the company made their sales of steel afforded a much better profit than turning steel into nails at the prices which have been prevailing.

Tasker Tube and Steel Company are opening an office at 22 William street, New York. The company, as indicated in their name, will roll seamless steel tubes under Stephen P. M. Tasker's patents.

Machinery.

The Citizens' Traction Company of Pittsburgh have placed a contract with the Westinghouse Electric and Mfg. Company of that city for a complete equipment of electric street car motors for the extension of their lines from Butler street to Sharpsburg, across the Allegheny River. The order calls for 20 noiseless motor cars, which will be run by the overhead trolley system.

The Philadelphia and Reading Railroad Company are erecting a repair and machine shop at Nicetown, Pa. The structure will be 307 x 176 feet, with an extension 25 x 36 feet, and will cost about $20,000.

The machine and blacksmith shops of the Illinois Central Railway Company, located at Water Valley were destroyed by fire one day last week. The loss is estimated to be in the neighborhood of $40,000. The buildings will probably be rebuilt.

The iron foundry and machine works of Enderline & Baronio were completely destroyed by fire a few days ago. The loss is estimated at about $7000, with only $3600 insurance. The works will probably be rebuilt.

The Ryan-McDonald Mfg. Company of Waterloo, N. Y., are to remove their machine works to Curtis Bay, Md., where a company with $100,000 capital stock will be incorporated, and where a building 350 x 70 feet will be erected.

The Triple Wire Nail Machine Company, who were recently incorporated to establish a Hastings wire nail works at Parkersburg, W. Va., will also erect a plant at Huntington, W. Va

The Luray Foundry and Machinery Company have been organized at Luray, Va., with a capital stock of $20,000, to operate the Broadway Foundry and Machine Works, which are to be moved from Broadway to Luray. S. K. R. Hoovee is president of the company, W. L. Hudson vice-president and H. V. Hudson secretary.

It is stated that the Norfolk and Western Railroad Company will build machine shops at Kenova, W. Va.

It is stated that the Vermont Tool Company of Vermont are in negotiation with prties in Chattanooga, Tenn., for the removal of that plant to the latter place.

The Nashville, Chattanooga and St. Louis Railway Company will establish machine shops and round house at Nashville, Tenn.

The town of Abbeville, S. C., has asked the State Legislature for authority to enter into an agreement with the Georgia, Carolina and Northern Railroad Company for the erection of machine shops in that place.

The American Bridge and Iron Company of Roanoke, Va., will commence at once the rebuilding of their foundry and machine shops, recently destroyed by fire.

An extraordinary heavy snowfall at Roanoke, Va., last week caused the collapse of the roof which covered the blacksmith shop of the Roanoke Machine Works.

The Weimer Machine Works Company of Lebanon, Pa., have shipped the first blowing engine to the Tennessee Coal, Iron and Railroad Company, at South Pittsburg, Tenn. The engine is specially designed for heavy work. The dimensions are: 50-inch steam cylinder, 96-inch air cylinder, 60-inch stroke. The piston speed is 400 feet per minute at 18 pounds pressure. They have also shipped the Weston Furnace Company, Manistique, Mich., and the Detroit Iron Company, Detroit, Mich., engines 36-inch steam cylinder, 72-inch air cylinder, 48-inch stroke. The Cherokee Iron Mfg. Company of Rusk, Texas, have placed an order for a complete furnace top with gas seal arrangement, and one 36 x 72 x 48 inch blowing engine. The following cinder cars, a patent of the company's, have also been shipped: Colorado Coal and Iron Company, Bessemer, Col., three; Kemble Coal and Iron Company, Riddlesburg, Pa., one; E. & G. Brooke Iron Company, Birdsboro, Pa., two, and Woodward Iron Company, Woodward, Ala., two. There are now over 100 cars in use in all parts of the country. The new rotary blower designed and patented by them is nearing completion. It is a positive blower, and will give a blast pressure of 8 pounds per square inch.

Borden, Selleck & Co., 48 and 50 Lake street, Chicago, issue a neat 48-page catalogue descriptive of the Harrison Conveyor, intended for handling coal, sand, clay, ores, shavings, sawdust, lime, cement, &c. This conveyor is made entirely of wrought iron or steel. It consists of a chain in sections of 13 to 25 inches in length, firmly joined together by a patent link, which at the same time fastens to the chain at equal distances a metallic push plate of diamond shape for moving the product. A wooden or composite trough is used, which is made to conform with the shape of the push plates. Being operated as an endless chain, it can be used over any number of wheels. The catalogue illustrates the details of the conveyor and methods of use in handling various materials. The illustrations cover almost every condition to be met in transferring coal and similarly handled products.

The Trethewey Mfg. Company of Pittsburgh, manufacturers of rolling mill machinery, have just completed the erection of a crocodile shear that will cut steel or iron boiler plates up to ¾ inch thick and any diameter up to 6 feet. The shear is specially adapted for making circular cuts, and was built for the Moorhead-McCleane Company, proprietors of the Soho Iron and Steel Works, at Pittsburgh. It weighs about 6 tons. In a recent test a similar shear cut 157 boiler plates 58 inches in diameter and 7-16 inch thick in five hours. These machines are built in smaller sizes, capable of cutting up to ¼ inch in thickness and any diameter up to 6 feet. The same firm are building for Mackintosh, Hemphill & Co., Limited, of Pittsburgh, five 3 and 5 ton hydraulic cranes for use in the new steel plant of the Ashland Steel Company, at Ashland, Ky. The firm are adding to their machinery equipment a 2-ton steam hammer for forging shear knives. In addition to the work mentioned above they have a number of other orders on hand that will keep them fully employed for some time.

Among shipments made during the present week by the Leechburg Foundry and Machine Company of Pittsburgh, may be mentioned the following: One Aiken patent hydraulic billet mold machine with intensifier, shipped to the Detroit Steel and Spring Works of Detroit, Mich.; 10 hydraulic converter bottom lifts to the new rail mill of the Pennsylvania Steel Company at Sparrows Point, and one 32-ton fly wheel in eight sections, with one 18-inch hammered shaft for same, to the Columbia Rolling Mill Company, at Columbia, Pa., and

a large lot of blast furnace machinery to the Max Meadows Furnace Company at Max Meadows, Va. On account of pressing orders the plant will be closed down for a few days only in order to take stock.

William Tod & Co. of Youngstown, Ohio, have recently made a purchase of land adjacent to their plant. For the present the firm will use it for storage purposes, but it will probably be used before long to accommodate a proposed increase to their foundry. The firm have recently added a new 2-ton steam hammer to their forge department. They have also built a heating furnace, put in a new boiler and added a number of new tools. They usually expend about $10,000 per year in the way of improvements, and the present year is not an exception in that respect.

The Lake Shore Iron Works is a new corporation organized at Marquette, Mich., to rehabilitate the works abandoned by the Iron Bray Mfg. Company when they removed to Duluth. They will manufacture a general line of machinery, with special attention paid to mining machinery. The new company are organized with an authorized capital of $100,000, of which $70,000 is paid in. The first board of directors comprises J. M. Longyear, Peter White, Charles Y. Osburn and Alfred Kidder of Marquette, and Carlos D. Shelden of Houghton. J. M. Longyear is president, Peter White secretary and treasurer and Seymour H. Holley general manager. The boilers and engines are in shape for use at once. It is the intention to start up the works just as soon as the machinery can be placed in position, and within two weeks it is expected that the company will be in the field for business They will from the start turn out castings and machine work of every description, and as soon as possible will branch out into the general manufacturing business, for which their location, capital and equipment fit them.

Articles of incorporation have been filed at Albany of the Whitehill Engine and Pictet Ice Machine Company of Newburg, N. Y., with a capitol stock of $500,000. Robert Whitehill is president; William C. Dornin of New York City vice-president; Clarence L. Whitehill secrerary, and L. M. Smith, treasurer.

The Berlin Iron Bridge Company of East Berlin, Conn., are now putting up what will be the finest paper and pulp mill in the world at Madison, Maine, for the Mfg. Investment Company of New York. The buildings will consist of a machine shop, 72 feet wide by 183 feet long, and one story high; a wash room, 74 feet wide by 182 feet long, and two stories high; a digester building, 62 feet wide by 221 feet long, and three stories high; a wheel house 73 feet wide by 78 feet long and two stories high. All the supporting parts of the building are made of iron, as the very heavy loads of a pulp mill necessitate a very heavy construction. The side walls are made of brick supported by iron girders and columns.

The Billings & Spencer Company, Hartford, Conn., are putting up a new forge shop 40 x 250, with an L 40 x 40 for repair shop. This improvement will give room for 60 drop hammers and other forging machinery.

The Sulzer-Vogt Machine Company of Louisville, Ky., have just closed a contract with the Indiana Brewing Company of New Albany, Ind., and also with the Paul Keising Company of the same place, for ice machinery, and also with Henry Conrad for one 15-ton refrigerating plant and ice machine combined. The firm are now working full time getting their machines ready for next season's business, and are in most prosperous shape. They recently purchased a large plot of ground adjoining their present establishment, on which they are erecting a complete boiler tank for making their own boilers, tanks, &c., and which will take the place of their present boiler yard, which is located three blocks away.

The Springfield Emery Wheel Mfg. Company of Bridgeport, Conn., who a short time ago found themselves in financial embarrassment and under the necessity of calling a meeting of their creditors, have been granted the extension of time asked for in which to pay their debts. This guarantees the continuance of the business. The management will be changed somewhat, although the valuable services of the founders will be retained. The works have not lost a day during the trouble, but owing to circumstances only about a two-thirds force was employed. The works will now be pushed to their fullest capacity, and with the large line manufactured and a good supply of orders on hand the outlook is very promising.

The Benicia Agricultural Works of Benicia, Cal., recently turned out what is said to be the largest roller chain traction engine in the world. It weighs 20 tons and will pull 40 plows, doing the work of 70 horses over and above the power required for propulsion. Straw is the fuel used.

The Sebastian-May Company of Cincinnati, Ohio, have been compelled, owing to the rapid and continued growth of their business, to obtain larger manufacturing facilities, and have therefore decided to locate at Sidney, Ohio. This is the third time within seven years that this establishmsnt have outgrown their quarters and been compelled to enlarge. At Sidney they have secured a large tract of land and have completed the erection of buildings especially equipped with the best tools and special appliances obtainable for the rapid production of their lathes.

Hardware.

The private copartnership existing under the name of the Hazen Company, factors for sale of iron and steel, composed of John F. Hazen, W. L. Finch and George E. Day, have been incorporated under the laws of Ohio, with a capital of $300,000. The stock is held by the three gentlemen named and W. H. Freed, president of the American Cotton Oil Works and Col. W. P. Anderson. The business will be conducted as heretofore. The company, we are advised, are erecting a large wire mill and wire nail factory at Anderson, Ind., and, having purchased the Cincinnati Wire Company's plant, will move the same to that city as soon as it is completed. Their general office will remain in Cincinnati.

The coal hod business of Victor Knecht and that of the Cincinnati Screw and Tap Company will, as soon as the necessary buildings are completed, be operated under one roof, the two concerns consolidating and continuing to do business under the name of the Cincinnati Screw and Tap Company. The officers of the new organization are Victor Knecht, president; Louis A. Bode, vice-president, and Joseph Wuerke, secretary and treasurer. The capital stock of the company is $100,000, of which $65,000 is paid in, and the business will be the production of coal hods specialties in stamped work, screws, taps, dies, &c. They will employ 80 hands. A plot of ground 100 x 250 feet on Beekman street adjoining the C., H. and D. R. R. has been purchased, upon which will be erected at once an L-shaped building of brick, three stories in hight, to cost $15,000

The removal of the National Metal Edge Box Company into their new quarters at 621-623 Cherry street, Philadelphia, will, in connection with the recent enlargement of their paper mills at Readboro, Vt., increase their capacity about threefold. The new building is a substantial brick structure, 40 x 120 feet and five stories in hight.

John H. Clay, 1320 Ridge avenue, Philadelphia, manufacturer of fire hose and supplies, reports that he has a number of contracts for fitting up mills and cities with complete fire service. Mr. Clay makes a specialty of this class of work.

John Fuller, Sr., Seneca, Kan., is preparing to put in appliances for retinning the interior of soda fountains, which has never before been done in the West. Work in this line has gone to Boston formerly.

C. Rogers & Bros., Meriden, Conn., manufacturers of spoons, forks, knives, &c., advise us that the volume of their business has been very large and satisfactory. They have made large additions to their plant, and expect to increase the same next January.

Pullman Sash Balance Company, Rochester, N. Y., report that their trade with the railroad companies is constantly increasing, and that they have recently received an order for 500 pair of car window balances from a well known railroad company. They offer to send any railroad company a pair of car window balances, free of charge, to use as sample. This balance is referred to as being very attractive, and as fast superseding the old style of locks.

Hart Mfg. Company, Cleveland, Ohio, manufacturers of Duplex die stock, report that the demand for these goods is constantly increasing. About a year ago they enlarged their works, and now are under the necessity of adding new machinery to their plant to enable them to keep up with orders. They also refer to the large export orders they are receiving, especially from Australia, Germany and Great Britain.

Dixon Crucible Company, Jersey City, N. J., report that in 1890 their business was of greater volume than any previous year, although prices have declined with the increased output of goods. The demands of trade have taxed their facilities to the utmost, which will make it necessary for them to enlarge their plant during the coming year.

Combination Folding Bathtub Company, Marshall, Mich , state that their present capacity for the output of their folding bath is about 50 per week, and that they are now four weeks behind orders. They are intending soon to double their capacity, when they will be in a better position to promptly fill orders. They deal principally with the hardware trade, and their business extends throughout the United States.

Miscellaneous.

The Commonwealth Natural Gas Company of Pittsburgh, with a capital stock of $10,000, were granted a charter on the 17th inst. The company propose to produce gas in Hampton, McCandless, Richmond, Pine, West Deer and Indiana townships and furnish it to the people in Pittsburgh and Allegheny. The directors are Jacob B. Decker, Thomas M. Erwin, Norman W. Nolan, Frank B. Dodson and John Hancock, all of whom have an equal number of shares of stock.

The capital stock of the Peoria (Ill.) Metal Spinning Company has been increased to $75,000, and the name of the concern changed to the Buckeye Mfg. Company.

Twenty-seven locomotives are now under construction in the Baldwin Locomotive Works, Philadelphia, for service in New South Wales.

The new car wheel works at Jefferson, Texas, has been completed, and is awaiting the final construction of the Lone Star Iron Company's furnace, which will go into blast in a month or so. This company are now putting in 45 charcoal kilns.

J. B. Hastings, the inventor of the Hastings wire nail machines, is organizing a company at Salem, Va., to establish a wire nail mill in Salem and a similar plant in Roanoke. Sites have been selected for both plants.

The Acme Sewing Machine Company are negotiating for the establishment of a factory at Harriman, Tenn.

Negotiations are said to be pending between the Lexington Development Company, Lexington, Va., and the owners of a stove foundry at present located in Ohio for the transfer of that plant to Lexington.

It is stated that the Charleston Mining, Mfg. and Improvement Company of Charleston, W. Va., are negotiating for the location of a brass and iron works now operating in New Jersey.

The Chattanooga Saw Works are pushed to fill their orders. Besides saws they are now making a specialty of planer and molder knives.

The St. Louis, Arkansas and Texas Railroad Company have secured a site at Pine Bluff, Ark., for the erection of car shops.

The St Louis Expanded Metal Company are reported to be negotiating at Fort Worth, Texas, for the establishment in that place of a branch plant.

The Norfolk and Western Railroad Company will establish car shops at Radford, Va.

The Schofield Metal Cross Tie Company have been incorporated at Chattanooga, with a capital stock of $100,000, which may be increased to $200,000. L. Schofield is president.

The plant of the Indianapolis Car Works was sold on the 18th inst. to a syndicate of creditors represented by Edward Pollock of Cincinnati for $52,500. The receiver had reported the appraised value of the plant at three times the amount realized. The purchasers, it is reported, propose to operate the plant themselves.

The Connecticut Motor Company, Plantsville, Conn., manufacturers of electric motors for all purposes, have recently adapted several important improvements heretofore used only on the larger motors to the smaller sizes, viz.—2, 3 and 5 horse-power, which machines are made specially for use where power is required in moderate units and where incandescent electric circuits are available.

Among recently authorized corporations in Illinois are the following: Prouty Street Car Motor Company, at Chicago; to manufacture street car motors; capital stock, $300,000; incorporators, Enoch Prouty, J. L. Francis and W. S Gooding. Thomas Brothers Mfg. Company; to manufacture brass goods and machinery; capital stock, $30,000; incorporators, Horatio Thomas, Parker M. Lewis and Charles A. Buell. Walsh Torch Company; to own and control patents of gasoline torches, blow pots, &c., and to manufacture same; capital stock, $50,000; incorporators, John C. Walsh, Edward J. Hanley and Ole A. Johnson. Lytle Springs Company, at Aurora; capital stock, $100,000; to manufacture spiral springs; incorporators, J. O. Curry, George Meredith and E. Q. Hobbs.

The Cowles Electric Smelting and Aluminum Company have removed their office to their works at Lockport, N. Y.

Work on Fort Warren and other fortifications in Boston harbor will be finished next spring. The sea wall will be heavily armored with nickel steel.

The Iron Age

New York, Thursday, December 25, 1890.

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RICHARD R. WILLIAMS - - HARDWARE EDITOR.
JOHN S. KING. - - - - BUSINESS MANAGER.

The Steel Rail Trade.

The past few weeks have been a period of particular anxiety to those engaged in the steel rail trade. For many years the outlook has not been so discouraging. Orders were very scarce, and even the wealthiest of the mills were made to feel keenly the tightness of the money market. Prices were steadily crumbling away, and the first appearance of large *bona fide* orders was expected to become the signal for cutting to a point close to the lowest ever reached in the history of the industry. Some hopes arose when the Carnegie interest purchased the Allegheny mill, since it was known that negotiations were pending for the consolidation of two Eastern mills, or the purchase of one by the other. The whole matter fell through on the eve of its consummation; and it looked again as though fierce competition would make the manufacture of rails an unprofitable or a losing business to all who were engaged in it. Although it has been frequently clothed with arbitrary and pernicious powers by irresponsible outsiders, the existing association did not possess a shadow of influence over the course of values. Its allotments were disregarded habitually. It was evident that a serious crisis had been reached in the steel rail trade, and that some means must be devised to tide over a dangerous period.

The tendencies in the steel rail trade and the relative position of the different mills have been admirably reviewed in the article published in the Philadelphia *Manufacturer* over the signature "Ironmaster," republished in *The Iron Age*. Exception might be taken on some minor points, such as the relative capacity of the mills and their total possible output. But the fact remains that the seven concerns which occupy any position in the rail trade can each claim advantages and are all powerful, so that unbridled competition among them for work which cannot keep all running would inflict great injury to every one without exception.

The natural result has been that the majority of the mills have been inspired with a desire to make any reasonable concessions for the sake of harmony. All that their managers asked was that they be given a chance to secure a moderate profit. A series of meetings were held, at which a number of different propositions were presented and discussed. They led to little encouragement, but were persisted in until a final meeting was held last week in this city. Even then the situation seemed hopeless until ultimately a plan was brought forward upon which all of the mills represented officially agreed provisionally.

The details of the plan were not made public, but it was understood that it closely resembled the arrangement at one time in force among the Ohio Valley cut nail works.

Percentages were allotted to the mills, the three Western concerns, Illinois, Carnegie and Cambria receiving a fraction over two-thirds of the whole, while the four Eastern mills nearly shared alike the remaining third. It was quite generally believed that the plan would be adopted, but at the last moment one Eastern mill declined to sign, and the arrangement has gone to pieces, with little prospect that anything can be done. It is only too probable that demoralization will follow in the Rail trade, which will not be without its effect in other allied lines of the business. There is only one branch which will regard the collapse of the negotiations without disappointment. To the manufacturers of soft steel billets and slabs the organization was expected to become the source of some anxiety. Some of the rail mills who also produce large quantities of soft Bessemer stock might have believed it to be to their interest to lower general costs by keeping their converting plants working to full capacity. But even there the future could have been very little worse than the present.

The Financial Situation.

The signs are accumulating that confidence is returning among monied men, and that the blight of restricted business operations will be forgotten at no distant date. There can be no question that capitalists have been badly frightened. We know of cases in which large sums of gold coin or certificates were locked away in safe deposit vaults simply because the owners were afraid to entrust it to anybody or to purchase securities however cheap they might appear. The banks, too, have been more liberal and the temptation to divert money into Wall street to secure exceptionally high rates on call loans has well nigh disappeared. Long time loans have been made at moderate rates of interest, and gold has come to us from abroad in payment of goods forwarded, the supply of American securities to be offered for sale at any price by embarrassed foreign speculators having given out. The aggregate amount of stocks and bonds which have been tranferred from foreign to American ownership must have been enormous.

The strain has been borne exceedingly well in nearly all departments of industry, commerce and finance, so that American business men may well, at no distant date, look back upon the troubled period with the renewed conviction in the strength and resources of this country. With confidence being established, as is now doing, credits will be more liberally extended, and old concerns and new enterprises will again go forward. The situation does not warrant the belief that the rush of activity will begin again very soon. The conviction that all danger is over can only be the creation of accumulated favorable evidence. Full confidence can only come slowly, but much is gained when it is generally acknowledged that the worst is certainly over and when every day brings its budget of encouraging news. A good many business men feel that natural conditions will work a sure cure, and that the intervention of legislators can only do harm. So far as the iron trade is concerned, the action of the majority of consumers, and of some large producers indicates that a somewhat lower level of prices is looked forward to as the basis for transactions covering the winter months. The heavy sales of steel at low prices clearly prove that. It is conceded, too, even by some of the producers, that next year's ore and fuel contracts must be made on a lower range. So far as ore is concerned, we understand that some of the lake mining companies express the fear that a reduction of even more than $1 a ton will have to be conceded. Should this prove to be the case, then there will be no obstacle to the development of an enormous demand.

Sixty Years of Peace.

A curious fact has recently been brought out in connection with the proposed establishment of a Western branch by a large and very wealthy Eastern manufacturing concern. The company's intention of transferring a large part of their business to the West had no sooner been made public than the managers were, as usual, overwhelmed with offers of free sites, bonuses and all sorts of other inducements from enterprising town boomers. It would have been easily possible for them to have made arrangements in some localities that would have given them immense advantages over their competitors, if the matter had resolved itself into the simple question of an available site in close proximity to their Western market. The best offer would then have won the prize of securing this reputable establishment. But there were other considerations of greater weight to the management than a free site, a bonus, free fuel, exemption from municipal taxation or any other pecuniary inducement. The original concern, employing thousands of men, had never had a strike in its existence of more than half a century, and the managers proposed to lay the foundation for a similar record for their Western branch. They had enjoyed 60 years of peace, of entire immunity from labor troubles, and desired these happy relations with their workmen to continue. The selection of a site involved the choice of a location which would be healthful for their employees and enable them to enjoy agreeable surroundings. This was regarded as the most important point to settle, consistent with favorable transportation facilities and other essential requirements for cheap manufacturing.

From this statement of the company's position, the keynote of its universally pleasant relations with its workmen will

be apparent. They are not regarded wholly as machines performing certain functions in accordance with the requirements of the company. They are human beings, with tastes, desires and ambitions, and their welfare is a matter of sufficient solicitude to be a leading consideration in the selection of a site. Employers who display such kindly impulses in this respect must surely be influenced by the same sentiments in the daily treatment of their working force. It is not a mere accident, a curious exception to the usual history of industrial establishments, that this concern has for 60 years escaped without a labor trouble. Wise counsels and prudent management must have contributed to this remarkable record. The time covers a succession of periods of prosperity and intervals of depression which must have affected wages in this establishment as well as in all others, and skillful management must have been required to preserve harmonious relations both in times of very high prices and very low prices. The peculiarities of the case are intensified by the statement that these works manufacture iron and steel.

So far as we are aware, no special remedy nor ingenious conciliatory device for preventing labor troubles has ever been adopted by this establishment. Cooperation does not exist in any form, nor is profit-sharing with the employees practiced. The works are run in the orthodox way, with the managers of the company managing affairs in their own style, employing hands of their own selection, and paying them what they consider fair wages. There is no socialism nor communism nor any other theoretical method of reforming human affairs in vogue in the workshops of this company. The owners own and manage, and the workmen perform their tasks and receive their pay. In this case the element of fair dealing between master and man appears to be the sole influential power that has been able so far to makes strikes unknown. This remarkable industrial history proves that strikes can be avoided, that there is a way of circumventing labor agitators and of allaying discontent in advance and not allowing it to ferment until it reaches fever heat. Surely the most successful manager is not he who always beats a strike, but he who is always able to avoid one.

A meeting was held at Des Moines, Iowa, on the 18th inst. by the Railroad Commission of that State and a sub-committee of the Uniform Classification Committee of the several freight associations of the Western railroads. J. W. Midgeley of the Southwestern Freight Association was the principal spokesman for the railroad people, and urged the adoption of the uniform classification. He stoutly protested that the new classification will not advance rates in general, and presented numerous points in which the proposed classification will be superior to the present different and conflicting systems. It is understood that Mr. Midgeley's influence and persuasive eloquence had much to do with the adoption of the uniform classification by the Warehouse and Railroad Commission of Illinois. If his arguments are successful with the Iowa Commission also, he will have made very encouraging progress toward the realization of his hopes.

Instruction of Employees.*

An employer who hires others to work with machinery, in addition to providing them a safe place and safe appliances with which to work, has a responsibility with reference to instructing them as to the use of such appliances, and warning them of the dangers incident to their employment, which cannot be disregarded without entailing upon himself liability for the neglect of that duty. An employee who enters into a dangerous employment contracts with reference to the dangers of which he knows, or from his experience ought to know of, and those risks he is held, as a matter of law, to assume. There are two classes of dangers which a servant is held to have assumed: 1, those which are plainly apparent to him in the course of his employment, and, 2, those which are known to him as a result of his experience in the employment. This is said with reference to the inherent dangers of the employment, and not with reference to the condition of machinery or appliances which we have heretofore considered. The risks which may be assumed because they are plainly apparent must be such as the servant may be reasonably expected to comprehend. A danger may be said to be plainly apparent to a man of mature years, where it could not be said that a boy would realize the presence of the same danger. It is not so much the character of the danger always, as it is the intelligence and understanding of the servant. The second class depends for determination, in like manner, upon the servant rather than the nature of the risk, and is defined only by the experience of the employee. Therefore it is wise in the employer if he take the precaution, as each newly employed servant takes his place, to see that he is specifically warned against such dangers incident to his work and instructed as to the means of avoiding them. In most cases this is the work of a few moments, and if systematically done would result in the prevention of many accidents and the damage suits attendant thereon. In deciding a case in which the question of the inexperience of an employee was involved, the court said upon that point: "The only other defense to the plaintiff's right to recover is that the danger was so plain and open to the observation of any one that a boy of 14 years, wholly unacquainted with the working or use of machinery, if he undertook to obey the order, assumed all the risks attendant thereon, and cannot therefore recover; and the learned counsel for the appellant contend that the second question, which submits that question to the jury, should not have been submitted to them as a question of fact, but should have been decided by the court in favor of the defendant, as a question of law. We cannot agree with the learned counsel for the appellant in this contention. It is not all clear to our minds that a boy 14 years old, wholly inexperienced in the use of or in working about machinery, would clearly comprehend the dangers attendant upon the work he affirms he was directed to do. If he was directed to do the work, as we believe he was for the purpose of this case, without any caution or warning on the part of the person directing it to be done, he would be very likely to do it without much thought as to its being dangerous or otherwise. The danger attendant upon the work would not be likely to occur to him, as he says it did not. It is this tendency to thoughtlessness on the part of the boy, when without experience, which makes it incumbent upon the experienced master to caution him when he puts him in a place of danger."

In another case involving this principle it is said: "It was certainly an act of negligence on the part of the foreman to order a little boy to oil such dangerous machinery while it was in motion. He was too immature to form a correct idea of the danger of the task assigned him, and relied entirely upon the judgment of the foreman. Having intrusted the foreman with the management of the mill, the owners are responsible for his conduct."

The responsibility placed upon employers of inexperienced servants in dangerous work is a heavy one. The law charges the employer, under such circumstances, with all the responsibility, and until by careful instruction he has removed the burden of that responsibility the question of negligence on the part of the servant does not come in. The degree of instruction required must in the nature of things be governed by the circumstances. The nature of the work, the intelligence of the servant, the degree of danger and his previous experience all go to make up the circumstances under and in view of which this employer's duty must be discharged. But, in general, it may be said that the instructions must be such as will give ths servant a full realization of the danger to which he is subjected, and must show him the means by which he can protect himself, and, further than this, the danger of doing otherwise than as directed must be shown to him. As an illustration may be cited a case in which it was the duty of a servant to place certain manufactured articles upon a coil to dry. He had been ordered specifically to put them on at a certain point, at which there was no danger, and had been told to put them nowhere else. He disobeyed this order, and in putting them on at another place fell into a vat and was injured. The court says on this point: "It is not to be expected that a child of 11 years will bear in mind, and always follow, a mere direction to put his work in one place, when he knows no reason why he may not put it in another place near by as well. Common experience teaches not to look for such implicit obedience to orders

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from him as may be required of adults. The direction to a child, therefore, must be accompanied with such explanation of danger as to enable him to understand it."

In another case, which has become the leading authority in Massachusetts upon this question, Judge Gray said: "The notice which the defendants were bound to give plaintiff of the nature of the risks incident to the service which he undertook must be such as to enable a person of his inexperience in the business intelligently to appreciate the nature of the danger attending its performance. The question, indeed, on this branch of the case, is not of due care on the part of the plaintiff, but whether the cause of the injury was one of which he knowingly assumed the risk, or one of which, by reason of his incapacity to understand and appreciate its dangerous character, or the neglect of the defendants to take due precautions to effectually inform him thereof, the defendants were bound to indemnify him against the consequences. . . . The obligation of the defendants would not necessarily be discharged by merely informing him that the employment itself, or a particular place or machine in the building or room in which he was set to work, was dangerous. Mere information in advance that the service generally, or a particular thing connected with it, was dangerous, might give him no adequate notice or understanding of the danger which would necessarily attend the actual performance of his work." It will thus be seen that in the employment of inexperienced labor about machinery grave responsibilities are incurred, which may be avoided by the exercise of care, but which, in the absence of proper precautions, are liable to be of considerable moment.

The English Channel Bridge.—The latest information in regard to the bridging of the English Channel will be contained in the report of the French Commission on Bridges and Roads, based upon surveys and other general engineering work performed last summer by M. Renaud, a naval engineer, and by M. Duchanoy, a mining engineer. The depth at every point is known, as well as the character of the ground upon which the bridge pillars are to be erected. The bridge is not to be built in a straight line, but it will make a vast curve, passing over a portion of two banks or ledges, the Colbart and the Varne. The arches are to be at a distance of from 500 to 300 m. from each other, except in the vicinity of the two banks, where navigation is impossible, and where, consequently, the distance separating the arches can be reduced to 250 and even to 100 m. The bridge bed on which the railroad tracks are to be placed will be 55 m. above the level of the sea at high tide, being supported by steel pillars 40 m. high, resting upon large masonry piles. The bridge is to have a total length of 38,600 m., and the cost is estimated at 850,000,000 francs. The annual freight traffic is estimated at 5,000,000 tons, which would produce receipts amounting to 125,000,000 francs. No data are given as to the estimated amount of passenger traffic.

Canadians are expecting to build another suspension bridge across the Niagara from Fort Erie to Buffalo.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., December 24, 1890.

Commodore Folger, speaking of the gun factory at the Washington Navy Yard, said: "In the matter of naval ordnance we far surpass England and equal France and Germany. The Germans are making the best high power guns just now. Our guns are as good, but we will not be satisfied until we have unquestionably the best gun in the world." The Commodore said that he did not believe in talking too much about such matters, as results must speak for themselves. He called attention to his annual report, in which he announced the fact that the buildings of the gun factory proper have been completed within the past year, and all the machinery in the south gun shops is in full operation. He says that the 110-ton overhead traveling crane has been erected on its supports in the north gun shop, tested and found to be satisfactory. A few changes in the hoisting purchase are being made by the contractor, upon the completion of which the crane will be accepted. The large gun lathes for this shop have been contracted for by the Department with Messrs. Wm. Sellers & Co. of Philadelphia, Pa. This contract requires the completion and erection of two of the lathes by January 10, 1892, and all of the lathes within 33 months from date of the contract, or by April 10, 1893, and the contract date for the delivery of the forgings for 12 and 13 inch guns is made to correspond with the deliveries of these large machine tools, that there may be no delay in the completion of the main batteries of the battle ships.

The large gun lathes of this contract will be superior in design, capacity, handiness, accuracy of work and finish to any similar machine tools now in use abroad. Tools of this class and size are at present only manufactured by two or three firms, and these in England and France. The shrinkage pit and gun carriage shop have been completed and are in full operation. The railway siding, which has been constructed from the Baltimore and Potomac Railroad into and around the navy yard, has greatly facilitated the delivery of gun forgings and the shipment of ordnance material.

During the year several special machine tools, notably boring mills and boring and turning lathes of the firm of Bement, Miles & Co. of Philadelphia, Pa., have been added, and mention is made of their efficiency and the merits of the manufacture. With the increase in the quality and the amount of the machinery at the naval gun factory and in the adoption of fixed and advantageous methods of shop administration and of settled principles, a large economy has resulted in the production of all material. This is especially apparent in the manufacture of tools, of projectiles, of guns and carriages. The shops have been completely provided with an electric lighting plant and it is at present practicable to work at night in case such course should be demanded. A contract has been made with the Morgan Engineering Company of Alliance, Ohio, for a 15-ton crane, which will be placed upon the tracks of the 40-ton crane now in use in the south gun shop, the latter having been found insufficient to perform the work required of it. These tracks, which now reach but to the shrinkage pit, will be extended throughout the whole length of the north gun shop in order to avoid the disadvantages of shifting weights from one crane to another. The gun factory is at present under the charge of Commander Charles O'Neil, to whom the bureau is indebted for many valuable improvements and suggestions in the development of the machine plant and of the naval material.

Under authority of the acts of 1887 and 1889, the Ordnance Bureau purchased a tract of 659 acres in Charles County, Md., on the Potomac River, and about 26 miles below Washington. A wharf has been built, magazine and instrument houses erected, butts put up, gun platforms for all calibers of guns constructed, and all preparations made for prosecuting the necessary work of proving and ranging guns and testing power, carriages, projectiles and other ordnance material. This important work has been in charge of Ensign R. B. Dashiell. It is proposed to transfer to this point all the work thus far done at the Annapolis proving ground, and it is believed that the difficulties and risks which have attended such work at Annapolis will no longer exist. The greatest advantage to be realized by the transfer, however, will be the saving in time and cost of transportation from the gun factory to and from the proving ground.

It is anticipated that the advantages of the direct contact of the manufacturing establishment with the proof of the material will be at once apparent and result in increased efficiency in all departments of the manufacture.

The Naval Board of Construction have before them the bid of the Bath Iron Works for the construction of Admiral Ammen's harbor defense ram for $930,000. The Bath company, who were the only bidders, in their bid stipulate that the 17 knot speed requirement should be omitted in the contract. The Naval Board, which is composed of the chiefs of the Bureaus of Construction, Engineering and Ordnance, recommended the acceptance of the Bath company bid provided they withdraw their conditional stipulation. The agent of the company has withdrawn the condition and the bid will be accepted. The bids for the torpedo boat are still under advisement. The bid of the Hereschoff company for a small vessel will be accepted.

Secretary Blaine is utilizing every means of bringing about practical results from his efforts in the direction of encouraging trade between the United States and the republics of South America. He has just made public the following circular:

Sir: In pursance of the recommendations of the International American Conference, the Bureau of the American Republics has been established at Washington. The object of this bureau is the dissemination of authentic and useful information concerning the commercial conditions and advantages of the several American republics for the benefit of manufacturers, merchants and others who may be interested in the extension of trade. It is proposed to issue at frequent intervals, for free distribution to the public, printed pamphlets or bulletins, containing:

1. The existing customs tariffs of the several countries and all changes of the same as they occur, with such explanations as may be deemed useful.
2. Official regulations which affect the entrance and clearance of vessels and the importation and exportation of merchandise at the ports of the several countries; also, circulars of instruction which relate to customs procedure or to the classification and appraisement of merchandise.
3. Ample quotations from commercial and parcel post treaties between any of the American republics
4. Important statistics of commerce and other information of special interest.

The bureau will at all times be available as a medium of communication and correspondence to persons applying for reasonable information pertaining to the customs tariffs and regulations, and to the commerce and navigation of the American republics; and any suggestions as to the character of information that may be found useful will receive careful attention. While the utmost care will be taken to insure accuracy in the publications of the bureau, it will assume no pecuniary responsibility for inaccuracies that may occur therein.

Address all communications to the Bureau of the American Republics, Department of State, Washington, D. C.

Very respectfully yours, JAMES G. BLAINE.

Future Growth of the United States.

Robert P. Porter, superintendent of the Census Office at Washington, in submitting official statistics of the present population of the United States, refers to previous estimates of the best recognized authorities in vindication of the correctness of the latest enumeration. He quotes approvingly an article published in the *Atlantic Monthly* for October, 1873, in which General Walker, then superintendent of the census, dealt with the subject of estimates of population, his article being entitled, "Estimates of Population." After setting forth, comparing and discussing the estimates of Elkanah Watson, DeBow and Kennedy, and the elements which affect the ratio of increase or decrease of population, the effect of the war upon population, &c., General Walker continued:

If we shall be able to show, or, rather, if a simple appeal to the daily observations of our readers shall suffice to convince them, that these causes are likely to continue and even to operate with increasing force in the immediate future, we shall reach almost an assurance that the population of the United States at 1900 is to be brought down from its projected hight of 100,000,000, not only below 90,000,000, but even to 80,000,000, 75,000,000, or it may be 70,000,000. And indeed the expectation of the larger result never was a reasonable one, nor could the estimates of Watson and DeBow at any time have been justified by a comprehensive survey of the physical and industrial conditions of the country, or by reference to the experience of any race or people known to history. Geometrical progression is rarely attained and never long maintained in human affairs. Whenever it is found, the most improbable supposition which could be formed respecting it is that it will continue. Gibbon has shown that the further conquest is carried the wider and the weightier become the resistance and the hostility which the conquering power is forced to encounter. So it is with national growth, whether in wealth or population. Not only do the limitations of nature become more and more stringent by reducing the rate of increase, but that increase does of itself create moral and social, not to speak of distinctly political, tendencies which traverse its own course, and if not strong enough to defeat further growth or accumulation, do at least make every successive gain more slow and painful. It was sufficiently hazardous for Mr. Watson, writing after the third census, to predict an uninterrupted and unretarded advance for as many as five decades; but it was far more hazardous for Mr. DeBow, writing after the seventh census, to predict the continuance of the previous rates of increase for the remaining five decades of the century; more hazardous because the long continuance of that ratio was an argument for and not against a change.

The change came—came later even than it had been reasonable to expect it; it began when the people of the United States began to leave agricultural for manufacturing pursuits; to turn from the country to the town; to live in up and down houses, and to follow closely the fashion of foreign life. The first effects of it were covered from the common sight by a flood of immigration unprecedented in history. Even its more recent and more extensive effects have been so obscured by the smoke of war that the public mind still fails to apprehend the full significance of the decline in the rate of the national increase, and vaguely attributes the entire loss of population to the Rebellion. But a close observer must discern causes now working within the nation which render it little less than absurd longer to apply the former rates of growth to the computation of our population at 1880, 1890 or 1900. What rate will be substituted therefor it would be futile to inquire. As the line of agricultural occupation draws closer to the great barren plains; as the old Western States change more and more to manufactures and to commerce; as the manufacturing and commercial communities of the East become compact; as the whole population tends increasingly to fashion and social observance; as diet, dress and equipage become more artificial, and as the detestable American vice of 'boarding," making children truly "incumbrances," and uprooting the ancient and honored institution of the family, extends from city to city and from village to village—it is not to be doubted that we shall note a steady decline in the rate of the national increase from decade to decade. But it would be merely an attempt at imposture to assume that numerical data exist for determining, within eight or ten or twelve millions, the population of the country 30 years from the date of the last census. As long as one simple force was operating expansively upon a homogeneous people, within a territory affording fertile lands beyond the ability of the existing population to occupy, so long it was no miracle to predict with accuracy the results of the census. But in the eddy and swirl of social and industrial currents through which the nation is now passing it is wholly imposible to estimate the rate of its progress, even though we may feel sure that the good ship will steadily hold her course and in time round the point which hopes too fond had—on the strength of a fortunate run made upon a smooth sea, with favoring winds and following floods—predicted would be reached by the blessed year 1900. This much, however, may with diffidence be said: That the best of probable good fortune will hardly carry the population of the country beyond 75,000,000 by the close of the century.

Another Chicago Passenger Station.

Chicago now possesses five well appointed passenger stations, each used by from two to six railroad lines, except the Northwestern Station, which is used by one line only. The latest addition to these buildings, and the most magnificent of all, is the Grand Central Passenger Station, at Fifth avenue and Harrison street, opened to the public on the 8th inst. It cost $1,000,000, and is used by the North ern Pacific, Wisconsin Central, and Chicago, St. Paul and Kansas City railroads, with the Baltimore and Ohio expected soon to be added to the list. The building is described as follows:

The station covers an area of $3\frac{6}{10}$ acres. The frontage on Harrison street is 226 feet and on Fifth avenue 680 feet. The foundation of the building consists of piling, the length of the piles being 30 feet under the lighter parts and 50 feet under the main piers and the tower. The total length of piling driven was 9½ miles Each pile under the tower carries a load of 24 tons. On top of the piles are boxes of foot square oak timbers bedded and filled with concrete. Next follows a course of foot square oak timbers, 4 inches apart and filled in with concrete. An 18-inch concrete bed topped this, and on this bed the dimension stones are laid. The tower is 236 feet high from the foundation, is 27 feet square and weighs 6000 tons. The first 29 feet is built of Connecticut brown stone. There are 15 stories in the tower, nine of which are used for offices, the upper four of these being reached by a special electrical elevator, The clock is the second largest in the United States, having a dial 13½ feet in diameter. The hours are struck on a 5-ton bell by a hammer weighing 250 pounds. The pendulum weighs 700 pounds. This clock electrically controls all the clocks throughout the depot. The flagstaff rises nearly 60 feet above the tower.

The main waiting room is an enormous apartment 71 x 267 feet, with a ceiling 25 feet high. This room projects 27 feet west of the office building above. The floors and walls of which are carried on 16 heavy steel columns 24 feet long and 2½ feet in diameter. Two hundred and forty incandescent lamps light this noble room. The floor is of Champlain and the 8½-foot wainscoting is of Tennessee marble. At the south end of the waiting room is the ladies' parlor, a handsomely furnished room 32 x 40 feet. An 8 foot passage way leads from the center of the south and to the baggage rooms, and over this passage a double marble staircase leads up to the big dining room. 56 x 73 feet, on the mezzanine floor.

The carriage drive is a court underneath the west wing of the building and lies north of the train shed, opening on Harrison street with three full arches each 37 feet span and 21 feet high. This court is 146 x 117 feet, and is surrounded on three sides by a 16-foot sidewalk. The floor of this court is supported on 30 piers and 80 cast iron columns. In this lower space underneath the driveway are two 330 horse-power boilers, three engines to run dynamos, the power for running the three hydraulic elevators and two air compressors. The exhaust steam is used to heat the building. The engines furnish 550 horse-power and run five dynamos and two are light machines with a total lighting capacity of 127,000 candles. The air compressors furnish the power to operate the switches, block signals, the drawbridge and all crossing gates within 4 miles of the station.

The train shed consists of a single arched span of a radius of 59½ feet, making a clear span of 119 feet, with the roof projecting on either side a distance of 13½ feet. giving the shed a total width of 146 feet over all. The roof, of corrugated, galvanized steel and ⅜ inch ribbed glass, is supported on 15 latticed steel arches, placed at 40-foot centers, making the total length of the shed 560 feet. The sides and ends are open for ventilation. The entire floor is covered with lithogen pavement, the four platforms being elevated 10 inches above the rail. These platforms are 19 feet wide, and between them are three pairs of tracks, each pair occupying 23 feet. Midway between each pair of tracks there is a 9-inch sewer with numerous catch basins. A complicated and costly system of construction permits a stream of water to be turned on any part of the floor space, either platforms or tracks, the water escaping immediately to the sewer system below.

Through the center of the shed runs a conduit for a steam pipe to furnish heat to standing cars and to carry a system of electric wires from all trains to the annunciator in the train starter's office. The lighting is done by 60 groups of incandescent lamps, 90 32 candle power lamps at each end arch and seven powerful arc lights high up under the arches. Eleven tracks are employed in the passenger yard. Six tracks under the arch of the shed and one east and another west, eight in all, will be used exclusively for passenger traffic. The most easterly track will be used for express matter and the next two west of this will be used for incoming and outgoing baggage.

The number of foreign business firms in Japan when the last census was taken, almost a year ago, was 202, of which 94 were British, 37 German, 32 American and 14 French. Next to the British among the foreign residents Americans were the most numerous.

TRADE REPORT.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., December 22, 1890.

There is not much room for remark in regard to the Iron trade. The position is in all respects about as defined in our last report, so that it is unnecessary to go over the ground again. Prices have shown a fair degree of steadiness considering the extreme dullness, and, although most articles are easier to buy, no quotable reduction has been made, except in Muck Bars, which for some time past have been out of proportion with other articles. No appreciable improvement in demand is expected until after the holidays, but it begins to look as though prices have pretty nearly reached bottom, as manufacturers in various departments have about decided that they had better close their establishments than to continue bidding lower and lower in the hope of securing business, which keeps as far away from them as ever. Mills have to close at this season anyway, and the length of time that they will continue closed will be determined after the turn of the year. But the position is probably not as discouraging as might be supposed from immediate appearances. The mere fact that there is no demand at present may mean that it will be just that much heavier when it does set in, although it must be conceded that on that point there is great uncertainty. Productive capacity is enormous, and up to this date has been utilized almost to its fullest extent. The question with the trade now is: How much of this capacity will be required to meet the demand during the coming year? Everything turns on this. If there is to be even a 5 per cent. shrinkage in consumption, it means lower prices, because each concern will endeavor to maintain its quota, and that can only be done by bidding under its competitors. For the present, however, it is impossible to say whether consumption will fall off or not, pending which there is a disposition to await developments before entering into important engagements. No one seems anxious to make offers to buy anything in quantity, and for the same reason sellers are not trying to force business on an unwilling market. The deadlock will be broken before long, but until there is a movement of that kind it is impossible to say what turn prices will take.

Pig Iron.—The demand for good Irons is surprisingly good considering the general dullness in business. Nearly all the favorite brands of both Foundry and Mill Irons (especially the former) are so well sold up that furnaces have practically nothing for immediate delivery. Orders for delivery during the first quarter of 1891 are coming in fairly well, and at about $18 for No. 1, $16.50 for No. 2 and $15 for Gray Forge there is very little difficulty in securing buyers for about the quantities that consumers usually require at this season. Of course there are Irons to be had for less money, and possibly good Irons, too, but it is a market in which a buyer at quoted rates must have precisely the brand he wants, and, as a matter of fact, anything that is not wanted is hardly salable at any price. Quite likely there is a good deal of Iron held under precisely these circumstances, but as yet there is nothing to indicate that there are any large quantities, or that the accumulations are more than usually burdensome. Buyers of round lots for cash have good opportunities for investment, however, but for the present appear to be unwilling to make bids, and, in fact, both sides seem to be "waiting for something to turn up." Small lots have been sold at about last week's quotations, and while there cannot be very much change from the present low prices, buyers have not yet shown any great desire to place orders for anything beyond 30 or 60 days' requirements. Sales of low grade Irons, part Cinder, have been made during the past few days to the extent of about 5000 tons, at prices varying from $13.50 to $13.75, according to point of delivery.

Muck Bars.—The market shows increasing weakness, and while some sales were made early in the week at $28.50 @ $29, delivered, lots were offered toward the close at $28, for spot cash, but not taken. It is, therefore, not unlikely that $28 @ $28.50, delivered, will be a fair average of the market for the next few days, but, as we said before, the feeling is weak and holders anxious to realize.

Steel Billets.—It is difficult to quote the market with exactness, but at the moment prices seem to be steadier at about $28.50, delivered, for Nail Slabs and $29 for 4 x 4 Billets. Some of the local makers quote higher figures, but Pittsburgh and Wheeling are said to be anxious sellers, and on any reasonable chance of a good sized order would probably name extremely low prices. But for the present $28.50 is likely to be an inside rate, and even that might be withdrawn on the first indication of a better demand.

Steel Rails.—There is a fair amount of business in sight. Mills have orders enough to run them through January, and very fair prospects for increasing their lines before the close of the year.

Manufactured Iron.—New business comes in very slowly, and in the general anxiety to secure work to begin the year with prices have been cut in all directions. The result has not brought in as much business as was hoped for, but it has demoralized the market to such an extent that buyers hardly know how low to bid to be low enough. Some of the leading mills are inclined to make a stand at 2¢ for Plates, and 1.80¢ for Bars, although there is some talk of lower figures than these, but in the present unsettled condition of affairs it is difficult to say definitely what the market is. There is no reason to expect much change, favorable or otherwise, until there is a general renewal of demand, which is not looked for now until after the turn of the year.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., ST. LOUIS, December 22, 1890.

Pig Iron.—The market is somewhat unsettled, the primary cause of which is the miners' strike in the Alabama district. One week ago circumstances then prevailing warranted us in predicting a settlement by January 1, but affairs have taken a different turn and it now seems more than probable that the strike will last for an indefinite period. The United Board of the Mine Workers of America have repaired to Birmingham and have taken charge of affairs there. The Amalgamated Association of Iron and Steel Workers have also passed a resolution to work only such material as has been handled by union men. From these facts the outlook is decidedly unfavorable for a speedy termination of the strike, and several furnaces have already blown out. What the outcome will be it is difficult to determine, but it needs no prophet nor the son of a prophet to predict that should this state of affairs continue prices will shortly be moving upward. Transactions during the past week have been of a limited character, the near approach of the new year causing somewhat of a lull in the demand. Prices are holding fairly firm, and in some cases a small advance is asked for special grades. We quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$15.50 @ $16.00
Southern Coke, No. 2 Foundry,	14.50 @ 15.00
Southern Coke, No. 3 Foundry,	14.00 @ 14.50
Gray Forge	13.50 @ 14.00
Southern Charcoal, No. 1 Foundry	17.25 @ 17.75
Southern Charcoal, No. 2 Foundry	16.75 @ 17.25
Missouri Charcoal, No. 1 Foundry	16.00 @ 16.50
Missouri Charcoal, No. 2 Foundry	15.25 @ 15.75
Ohio Softeners	17.75 @ 19.25

Bar Iron.—The market shows no particular change. The amount of business offered to the mills is not as heavy as a few weeks since, but yet is of sufficient volume to keep them comfortably employed. Lots from mill are quoted at 1.77½¢ @ 1.80¢; small lots from store are quoted at 1.90¢.

Barb Wire.—Business is unusually brisk in this department, more so than the most sanguine had expected. Prices have reached a level that has induced jobbers and retailers, who generally place their orders after the first of the year, to come in now and take advantage of them. Mills are very busy indeed, and it is intimated that higher prices will be in order after January 1. We quote as follows: Painted, 2.80¢; Galvanized, 60¢ additional; carload lots, 5¢ ₹ cwt. less than above prices.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, December 22, 1890.

Pig Iron.—The past week has developed nothing new, nor any changes in price in the Iron market. There appears to be a sort of lethargy at present permeating the movements of Pig Iron in all directions. Notwithstanding the prospect of there being a prolonged and serious strike among the miners through Alabama, there has been, as yet, no advance in price, and indeed the market all over the country seems hardly as stiff as it was ten days ago. The prospects are that there will be considerable trouble yet among the mining districts of Alabama. At this time it is very hard to tell what the future will bring forth in regard to prices of Pig Iron.

Louisville.

LOUISVILLE, KY., December 22, 1890.

Pig Iron.—No change in prices. It has been thought that the strike would influence the market and a slight advance could be expected; so far, however, there has been no change, though in the last few days it is evident that the furnaces are beginning to feel that there is no object in offering Iron at present prices, as the indications point to a prolonged strike. It is felt that the present stock of Iron will be shortly exhausted, and if the present heavy demand keeps up prices must advance. Consumers, however, before paying anything but a slight advance will use up the stocks already purchased, and in most instances buyers are in a position to run for 60 days if necessary on Iron already in yard. The last report of stocks shows that there is an increase in portions of the country, but in the South stocks will remain low for some time, owing to the reduced output. Consumption has remained large, though it is feared that after the first of the year it will fall off, owing to the trouble in money matters. For spot cash Iron has been offered as low as $9.75, Birmingham, for Gray Forge, but for future delivery $10 @ $10.25 for Gray Forge is the price asked. Car Wheel Irons have been extremely low; the best Southern Car

Wheel can be bought at $19.75, Louisville, for chilling grades. We quote:

Southern Coke, No. 1 Foundry	$14.00 @ $14.50
Southern Coke, No. 2 Foundry	13.50 @ 14.00
Southern Coke, No. 3 Foundry	13.00 @ 13.50
Southern Coke, Gray Forge	12.50 @ 13.00
Southern Charcoal, No. 1 Foundry	16.00 @ 17.00
Southern Car Wheel	17.00 @ 20.00

Cleveland.

CLEVELAND, December 22, 1890.

Iron Ore.—Certain dealers claim that there have been sales of Ore from the Chapin and other mines in the Menominee Range during the present month for next season's delivery, but maintain that the names of the purchasers can by no possibility be learned. Other dealers state emphatically that not a ton of next season's Ore has been sold, and that there is no possibility of sales before April or May. The fact, however, that Chapin Ore is always so desirable, together with the knowledge that inquiries concerning next season's prices have been made, gives some color to the report, which may or may not be true. Ore is going forward to the furnaces rapidly; about 30,000 tons have been taken from the docks in Cleveland during the past week. There are prospects of some sales of Bessemer during the next 30 days for all rail delivery this winter.

Pig Iron.—The usual holiday inactivity and dullness characterize the market. Nothing whatever is being done. It seems quite probable that no more Coke will be taken until there has been a change either in quotations or in the transportation rates. It is evident, however, that the outlook for good business in January and February is better than at any time during the past three months. Up to the time the stillness always accompanying the holiday season settled down upon the market, inquiries were numerous for Forge, Foundry and Bessemer Irons for delivery in February and March. That these inquiries will be repeated after the beginning of the new year is beyond question.

Old Rails.—No sales are reported. Prices for Old Americans are down to about $24.50 @ $25.

Scrap.—The market is weak and scarcely any business is being done. No. 1 Railroad Wrought is worth about $20 @ $20.50; Wrought Turnings, $10.50 @ $11, and Old Wheels, $17 @ $17.50.

Manufactured Iron.—Little, if anything at all, is being done in the way of sales, although the mills are quite busy upon old orders. No business is looked for until after the holidays.

Detroit.

WILLIAM F. JARVIS & Co., Detroit, Mich., under date December 22, 1890, say: While the stringency in the money market is not so great as it has been, yet it is sufficient to deter a considerable portion of consumers from placing orders for any large amount. The holiday season is usually dull, and the present is no exception. With the exception of a few sales of Southern Iron for delivery extending for the first half of next year, dealings have been confined to small amounts for prompt shipment. A few Southern furnaces have declined orders at present quotations for extended deliveries. They are confident that prices will not go lower, and if there is any change it must be to a higher basis, therefore they have everything to gain and nothing to lose by refusing to sell. There is quite a general feeling that after the first of the year the money market will be easier, and that business will be more active, and some are confident values will range higher as soon as active buying begins. With the market dull and prices moderately firm, we quote as follows:

Lake Superior Charcoal, all numbers	$19.50 @ $20.50
Lake Superior Coke, Bessemer	18.50 @ 18.75
Katahdin (Maine Charcoal)	23.50 @ 24.00
Lake Superior Coke Foundry, all ore	18.00 @ 19.00
Ohio Blackband (40 per cent.)	18.25 @ 18.75
Southern No. 1	16.00 @ 16.50
Southern Gray Forge	14.25 @ 14.75
Jackson County (Ohio) Silvery,	18.50 @ 19.00
Connellsville Coke	4.80 @

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, December 22, 1890.

There is no change of importance to note in the general Iron and Steel situation; new business continues very light, and no improvement is looked for until next month. A large number of firms will shut down about the first of the year to take stock and make repairs, and in the meantime they will not buy a ton of raw material they can do without.

Pig Iron.—There is no improvement to note in the demand; the market is very dull and prices are weak and drooping. Consumers, as a rule, are refusing to buy a ton more than is necessary to carry them through the rest of the present year, and furnacemen, with the exception of those who are pressed for money, are making little or no effort to make sales, for the very good reason that there is little or no margin for profit at present prices, which we quote as follows:

Neutral Gray Forge	$14.50 @ $14.75, cash.
All Ore Mill	15.00 @ 15.50, "
White and Mottled	14.00 @ 14.25, "
No. 1 Foundry	16.75 @ 17.00, "
No. 2 Foundry	15.75 @ 16.00, "
No. 3 Foundry	15.25 @ 15.50, "
No. 2 Charcoal Foundry	21.50 @ 22.00, "
No. 1 Charcoal Foundry	23.00 @ 23.50, "
Bessemer Iron	16.25 @ 16.50, "

In regard to Bessemer, it is rumored that some sales have been made at $16.25 and even $16, cash, to be delivered at Wheeling. So far as we are advised there have been no sales here below $16.50, cash, but it is probable that for immediate delivery $16.25 would be accepted. Several firms in the valleys are piling their Iron up, and say they have none to sell under $17, cash, at furnace, and that they intend to hold until they can get the price quoted.

Muck Bar.—There is little or no demand, and scarcely enough doing to establish prices; may be quoted nominally at $29 @ $30. It is intimated that it might be had below our inside quotations. Contracts were made some time ago for January, February, and even March, at prices from $2 to $2.50 above those now quoted.

Manganese—There is no improvement in demand. nor is it likely that there will be until after the advent of the New Year, now near at hand. Small sales of 80 % Domestic at $66 @ $67 ℔ ton. Consumers are refusing to buy a ton beyond immediate wants.

Manufactured Iron.—Very little new business. No change in prices, although they are weaker, in sympathy with raw material. We quote for first-class Iron as follows: Bars, 1.85¢ @ 1.90¢; Plate and Tank, 2.20¢ @ 2.25¢; No. 24 Sheet, 2.85¢ @ 2.90¢; Grooved Skelp, 1.85¢ @ 1.90¢; small lots for immediate delivery 1.95¢, and Sheared Skelp, 2.15¢ @ 2.25¢; all 60 days, 2 % off for cash.

Nails.—There is nothing doing here in Cut Nails, and prices are nominal at $1.80 @ $1.85 for either Iron or Steel, 60 days, 2 % off for cash. Wire Nails remain as last quoted, and while trade is only fair, it is all that can be expected just at the close of the year. We continue to quote at $2.10, 60 days, 2 % off for cash.

Wrought Iron Pipe.—There is nothing to note of an important character, with the exception that there is more activity in this than any other branch of the Iron business, although there is a falling off in new business, as there always is at this time. Prices remain unchanged. Discounts on Black Butt-Welded, 47½ %; Galvanized, do., 40 %; Black Lap-Welded, 60 %; Galvanized do., 47½ %; Boiler Tubes, 1¼ inches and smaller, 45 %; 2 inches and larger, 50 %; Casing, all sizes, 50 %.

Old Rails.—Continue extremely dull; there is no demand here apparently at any price. Sales are reported out in the Mahoning Valley at $26 and $25.50, and reports from there quote still below lowest price above quoted. There is very little demand anywhere, and the only way to make sales just now is to cut the price away down. Old Steel Rails are just as much neglected as Old Iron, and in the absence of sales may be quoted nominally at $16.50 @ $17.50.

Billets and Slabs.—The dulness noted for some weeks past continues, and prices are weak. While no reliable sales have been reported below $26 and up to $26.50, it is intimated that a desirable order might be placed below our inside quotation. Rumor of a large sale having been effected during the past week is not credited by those in a position to know what is going on.

Structural Iron.—There is some inquiry in regard to future contracts, but very little new business has been placed during the past week. No change in prices, which we quote as follows: Channels and Beams, 3.10¢; Angles, 2.25¢; Steel Bridge Plates, 2.55¢; Universal Mill Plates, Iron, 2.30¢; Refined Bars, 1.90¢ @ 2¢.

Steel Plates.—There is a fair business at unchanged prices: Fire Box, 4¢ @ 4.25¢; Flange, 2.95¢; Shell, 2.75¢, and Tank, 2.35¢.

Merchant Steel.—There is only a moderate business. Prices remain unchanged. Tool Steel, 8¢ and upward; Crucible Spring 4¢; Crucible Machinery, 5¢; Open Hearth Steel, base sizes, 2¼¢ @ 3¢; Bessemer Machinery Steel, 2.40¢; Tire Steel, 2.55¢ rates.

Railway Track Supplies.—Business reported slow. Prices unchanged. Spikes, either Iron or Steel, $2.15, 30 days, f.o.b. at makers' works; Iron Splice Bars, 1.95¢ @ 2.05¢; Steel Splice Bars, 2¢ @ 2.10¢; Track Bolts, 2.90¢ with Square and 3¢ with Hexagon Nuts.

Steel Rails.—There has been no new business reported and prices are nominal. The Allegheny Bessemer Works continue to run entirely on Billets, and the Edgar Thomson Works is the only mill here turning out Rails.

Old Material.—There is very little demand, and so little doing that it is difficult to give reliable quotations. No. 1 Wrought Scrap is quoted nominally at $20.50 @ $21, net ton. It is thought, however, that there will be an improved business next month.

(*By Telegraph.*)

Among furnacemen in Shenango and Mahoning valleys there is a united expression to stop their furnaces on the first day of the new year, unless the Coke operators and railroad agents agree to extend them the relief asked for by reducing rates. What the furnacemen demand from the railroads is: 1. Reduction of 15¢ ℔ ton on all Pig Iron shipped from any furnace in either valley to Pittsburgh; 2, a reduction of 20¢ ℔ ton on Coke consigned from the Connellsville Coke region to their furnace plants; 3, reduction of 25¢ ℔ ton on Limestone from any quarry in

either valley to the furnaces. From the Coke operators they demand a reduction of 40¢ ℔ ton from the present prices paid by them for Coke.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, } CHICAGO, December 24, 1890. }

The financial situation is improving, and the local banks now promise their customers better treatment in a few days than they have been able to give them for the past month. It is a great point gained to be able to see even this glimmering of daylight and to have this hope of relief from the great strain of money scarcity. The change cannot come too soon, as the lack of cash has been causing serious embarrassment to those conducting large operations, as well as the rank and file of business men. Some concerns of the highest standing and of apparently unlimited financial strength have been compelled to issue notes for the first time in their history. The situation has been more serious than was generally realized, but it is now confidently believed that the worst is over. There may be liquidations still to follow, as weakness has been exposed which cannot be covered up again, but the time for demoralization is over.

Pig Iron.—Dealers report some buying, but only in small lots, and for quick shipment. Inquiries are being received from heavy consumers, who are probably testing the strength of the market, with a view to guiding their future operations, but enough of them are coming forward to give promise of an early resumption of activity. Meanwhile, however, unpleasant experiences are had with numerous parties who have ordered more Iron than they need. Shippers are asked to defer deliveries so that their bills will be dated in January, instead of this month. Reports of offerings at low prices are current, but in almost every case the sellers want cash against bill of lading, and few buyers are able to meet the terms, so such offers are not making the market. So many Southern furnaces are now out of blast that prices for Iron from that section should be affected, but the financial necessities of some Southern companies are so great that they are not able to take advantage of the situation. They would sell considerably under their regular rates for cash, but at the same time it must be said that no transactions have been reported at the very low figures made in the previous week.

Lake Superior Charcoal	$18.50 @ $19.00
Local Coke Foundry, No. 1	15.50 @ 16.00
Local Coke Foundry, No. 2	15.00 @ 15.50
Local Coke Foundry, No. 3	14.50 @ 15.00
American Scotch	18.50 @ 19.00
Southern Coke, No. 1	16.25 @ .....
Southern Coke, No. 2	15.25 @ 15.75
Southern Coke, No. 3	14.25 @ 14.50
Southern, No. 1, Soft	15.25 @ 15.75
Southern, No. 2, Soft	14.75 @ ....
Southern Gray Forge	14.50 @ ....
Southern Mottled	14.00 @ 14.50
Tennessee Charcoal, No 1	18.50 @ ....
Alabama Car Wheel	22.25 @ 23.50

Bar Iron.—A steadier feeling is noted in this line. Small lots only have been sold the past week, but prices show no recession from old rates, makers still quoting 1.75¢ @ 1.80¢, half extras, Chicago, for local brands; valley mills continue to quote 1.70¢ at mill. Combatting the views of those who are looking for very low prices on Bar Iron, manufacturers call attention to the demand now existing for a much better grade of Iron than consumers were formerly satisfied with. They will no longer take Iron made entirely from Old Rails, and besides the supply of Old Rails is too light to enable manufacturers to use them to any great extent if they were so disposed. The low prices of past periods of depression will not be reached unless Pig Iron becomes very cheap. Collections are improving in this line.

Structural Iron.—The local demand is still strong for this class of material, as new buildings and the reconstruction of old ones are going forward vigorously. The Masonic Temple contract is to be placed this week and will call for an immense quantity of material. Quotations, f.o.b. Chicago, in carload lots, are as follows: Angles, 2.35¢ @ 2.40¢; Tees, 2.90¢ @ 3¢; Beams, 3.20¢; Universal Plates, 2.45¢ @ 2.50¢; Sheared Plates, Iron, 2.50¢ @ 2.60¢; Steel, 2.60¢ @ 2.70¢. Beams sell from store in small lots at 3.70¢, but Angles and Tees at 10¢ @ 15¢ ℔ 100 above carload prices.

Plates, &c.—Business has fallen off to some extent, but dealers are still finding it far from dull. They report concessions in price hard to get from the mills regularly supplying this market. Quotations are unchanged at: Nos. 10 to 14 Iron Sheets, 2.75¢ @ 2.80¢; Steel Sheets, 3½¢ @ 3¼¢; Tank Iron, 2.60¢ @ 2.70¢; Tank Steel, 2.80¢ @ 2.90¢; Shell Iron or Steel, 3.25¢; Flange Steel, 3.50¢; Fire Box Steel, 4.25¢ @ 5.5¢; Boiler Rivets, 4¢ @ 4.25¢; Boiler Tubes, 45 % off for 1¼ inch or less; 50 % off for 2 to 4 inch.

Sheet Iron.—Mill orders are scarce and prices are weak. Agents quote 2.90¢, at mill, for No. 27 Common, but this can be shaded on desirable orders. Jobbers quote 3.30¢ @ 3.40¢. Galvanized is unchanged at 60 and 5 % for Juniata.

Merchant Steel.—Trade is quiet, and will probably continue so until after holidays. Regular quotations unchanged. Tire Steel, 2.50¢ @ 2.60¢; Open Hearth Spring, 2.65¢ @ 2.75¢; Open Hearth Machinery, 2.50¢ @ 2.75¢; Bessemer Machinery, 2.25¢ @ 2.30¢; Crucible Spring, 3.50¢; Tool, 7¢ and upward; Plow Steel, 2.50¢ @ 2.60¢; Crucible Sheets, 7¢, 8¢ and 10¢.

Steel Rails and Fastenings.—The Rail business is improving, but roads are not yet ready to place large orders. Makers quote $31 @ $31.50. Splice Bars are steady at 2.05¢ @ 2.10¢ for Iron and 2.15¢ @ 2.20¢ for Steel. Spikes are unchanged at $2.20 @ $2.25. Track Bolts are quiet, with Hexagon Nuts worth 3.10¢.

Old Rails and Wheels.—In Old Iron Rails transactions have been light. They are quoted nominally at $23.50. Old Steel Rails are neglected, with dealers quoting $15 @ $18.50, according to length. Car Wheels are very quiet. Stocks are heavy. They are nominally worth $18 @ $18.50.

Scrap.—Offerings are large, but consumers are not inclined to stock up at present. All classes of Scrap are now very dull. Prices are weak and the cash buyers are able to pick up bargains. Dealers' quotations are as follows ℔ ton of 2000 lb: No. 1 Railroad, $19; No. 1 Forge $18; No. 1 Mill, $14; Fish Plates, $22; Axles, $25; Pipes and Flues, $14; Horseshoes, $18; Cast Borings, $8; Wrought Turnings, $10.50; Axle Turnings, $13; Machinery Cast, $13; Stove Plates, $9; Mixed Steel, $10.50; Coil Steel, $16; Leaf Steel, $17, and Tires $18.

Metals.—Business in Pig Lead has been at a standstill, with no transactions on which to base quotations. Spelter may be quoted at 5.75¢, Lake Copper at 17¢ and casting brands 14¢. Prices are weak, however, and on actual business these rates could possibly be shaded.

Plans have been prepared for the enlargement of the city hall in Boston at a cost of about $1,000,000. Mayor Hart favors a fire proof roof, together with capacious vaults for the storage of books and documents.

New York.

Office of *The Iron Age*, 66 and 68 Duane street, } NEW YORK, December 24, 1890. }

There has been very little change in the situation, the only developments of any interest, and they are far reaching, are those in the Steel Rail trade. Importers are doing next to nothing, and in the lines in which the New York market has more than local influence there is very little to report. As bearing on the financial situation, one of the largest concerns in the country, whose operations extend in all producing sections and in many lines of the Iron and Steel trades, reports that all the obligations due to them have been promptly met, with the exception of one very small one; that they have been involved in only one small failure, and that three-quarters of their open book accounts are paid at the usual time of settlement, while in the case of others good customers' paper is offered.

American Pig.—The market has been very dull and little business is reported. Reports from the Birmingham districts are conflicting. We learn from good authority that through the continuance in operation of a number of the smaller mines quite a considerable quantity of fuel in the aggregate is being produced. We quote $16.75 @ $17.50 for No. 1, $16 @ $16.50 for No. 2 Northern Iron. Southern may be quoted $16.50 @ $17 for No. 1 Foundry, $15.50 @ $16 for No. 2 and $14.50 @ $14.75 for No. 3.

Spiegeleisen and Ferromanganese.—Ealy in the week the great probability that efforts to form a new and strong combination would be successful led to a notable strengthening of the market, the majority of the Eastern mills declining to name less than $30. Early this week the fact developed that one of the Eastern mills declines to approve the agreement, and the whole matter is again in abeyance, with only a very slight chance that anything whatever can be done which will include all of the works. The facts in the case have only too recently become apparent to the other mills to allow them to shape a definite policy, but it is only too probable that a sharp contest will follow. At this writing the market is unsettled, and it is impossible to quote. Before the Windsor Hotel meeting last week Rails were selling in a small way at $28, at Eastern mill. The next week will probably develope at what round lots can be bought. It is feared that a sharp decline is imminent. The only sale reported is that of 11,000 tons by a Western mill to a Southern road. The report for December 1 shows shipments to date of 1,315,556 tons.

Billets and Rods.—Well authenticated reports have it that Steel Billets have sold on special terms of payment at a shade under $25.75, Pittsburgh, and it is reported that Wire Rods can be purchased in the West at $37 with little business doing. Foreign Rods are offered at $43.50 without bringing out any business.

Manufactured Iron and Steel.—Merchants and mill representatives report that there is quite a fair run of small orders, but that large contracts are scarce. The only recent transaction of any consequence in the architectural branch is the closing of the work for the Manhattan Storage Building. One or two other large buildings may soon be taken. We quote Angles 2.20¢ @ 2.25¢; Sheared Plates, 2.25¢ @ 2.30¢; Tees, 2.65¢ @ 2.75¢, and Beams and Channels, 3.1¢, on dock. Steel Plates are 2.25¢ @ 2.35¢ for Tanks, 2.55¢ @ 2.65¢ for Shell, and 2.85¢ @ 3¢ for Flange. Bars are quotable at 1.75¢ @ 1.90¢, delivered, for Refined.

Rail Fastenings.—The market is exceedingly dull, with Spikes nominally

quoted $2 @ $2.10, Angles, 1.65¢ @ 1.75¢, and Bolts and Nuts, 2.80¢ @ 3¢.

Warrant Stocks.—The American Pig Iron Storage Warrant Company report as follows:

	Tons.
Stock in yard, December 16, 1890	64,900
Put in yard seven days ending December 23, 1890	200
Total	65,100
Withdrawn seven days ending December 23, 1890	306
Net stock in yard, December 23, 1890	64,800

FINANCIAL.

The possibility of "panic legislation" by Congress is the single incubus that weighs most heavily in the financial situation. With the silver question eliminated a large amount of gold recently hoarded in anticipation of impending trouble would be restored to circulation; at least this is a view commonly entertained, whereas with free coinage it is surmised that there might be serious contraction. Despite this bar to returning confidence money is working easier, and it is reasonable to assume that after the annual disbursements on account of interest and dividends early in January the period of stringency will cease. Respecting the value of the new railroad compact there is not entire unanimity and until there is some advance beyond the embryonic stage the questions involved will remain as before and continue to be a source of uneasiness. Apart from the uncertainties above referred to the mercantile classes find themselves in a sound position, as indicated by the small percentage of failures during the period of stringency, it being remarked that in every instance noted there was a special cause, such as doubtful assets or overtrading. The total clearings of 52 cities for the week ending December 20 show a decrease of 4.9 per cent. Outside of New York the increase was 1.5 per cent. New York decreased 8.9 per cent.; Boston, 6.4; Philadelphia, 10.9. Holiday dullness prevails in the stock market, there being few movements of importance outside of dealing in silver bullion certificates. The weakness of Pacific Mail was attributed to the failure to push the Subsidy bill through the House. On Monday certificates declined to 102¾, due partly to rumored efforts to prevent the National banks from lending money on the certificates, and partly to a belief that Congress will be unable to do anything further in the way of silver legislation.

Government bonds are steady at quotations as follows:

U. S. 4½s, 1891, registered	103¼
U. S. 4½s, 1891, coupon	103¼
U. S. 4s, 1907, registered	121
U. S. 4s, 1907, coupon	122
U. S. currency 6s, 1895	109

The weekly bank statement was favorable, the surplus having increased $3,891,825, which rises their surplus above the required 25 per cent. on deposits to $4,498,900. The gain resulted from an increase of $3,573,500 in deposits, $4,136,700 in specie and $648,500 in legal tenders. The gain in reserve is partly due to imports of gold amounting to $4,707,500. On the other hand, shipments were unusually heavy, Philadelphia showing the most urgent needs, while Boston is more comfortable, and at Chicago there is steadily increasing confidence. Money has been loaned on time in considerable amounts and commercial paper has been sold at easier rates, usually on the basis of 8 per cent. for the best names. The inquiry was chiefly for short time. The market for commercial paper is narrow, the larger purchasers being country banks which do not care to send their available balances to their New York correspondents.

The merchandise markets generally are slow, attention being given to propositions for taking stock and winding up the season's business. Wheat closed lower on increased stock and the decline in silver and breadstuffs was heavy. Coffee was well supported. In cotton there was further weakness, with more active business. The decline in cotton on Monday brought the January option to 8.95¢, which is the lowest price for the delivery ever known. Provisions were lower, trading light. India rubber receded under a pressure to realize. Room by the steam lines for Liverpool is in increased demand hence for cotton, and there are freer shipments of copper ore.

Sterling exchange was weaker at $4.80½ @ $4.85. Bankers' and commercial bills are in better supply. Money in London was plentiful. German drain of gold amounted during the week to £1,163,000. The withdrawals have now ceased, while the influx into the Bank of England from Brazil and Australia maintains a reserve of bullion sufficient to meet further demands.

The preliminary statement from the Bureau of Statistics for November prints a comparison of the principal classes for two years:

	1890.	1889.
Cotton	$44,565,998	$47,555,038
Provisions	9,439,220	9,726,099
Breadstuffs	7,682,004	10,053,430
Petroleum	4,502,938	4,184,196
Cattle and hogs	2,306,262	2,061,403
Totals	$68,496,422	$73,580,166

These returns show a decrease in the principal items of $5,083,774, of which about $3,000,000 is in value of cotton and about $2,300,000 in value of breadstuffs. On the other hand, the imports at New York for the month of November were $43,151,123, against $38,015,176 for the same month last year, showing a gain of $5,135,947, and December exports promise an exceptionally heavy trade.

Coal Market.

The Anthracite Coal market is dull, very dull, there probably being less animation than a week ago. And as for prices, quotations are useless, schedules being a thing of the past, or, at least, until production shall sustain a normal relation to demands for consumption. In other words, it is a "go as you please market," every one for himself, with wide varietions in prices, according to circumstances and conditions. As one dealer remarked, "Things are all broken up; there's no market and no prices." Well, is $4 for store, f.o.b., a fair basis for negotiations? "Coal," said he, "has sold down to $3.35, and from that figure up to $4.25, showing wide fluctuations." Pea and Buckwheat, on the contrary, are strong on account of the scarcity of Bituminous for steam purposes. The talk now is of a suspension of mining all round during the holidays, which would help to stiffen the market, and the railroad companies are apparently doing something to relieve the glut by pleading scarcity of cars. Bituminous is quite active. Doubts are expressed respecting the probability of advancing railroad tolls. The production of Anthracite Coal for the week ending December 13 was 704,194 tons, or 15,651 tons less than last year, making the total output for the year 34,201,617 tons, being 143,120 tons more than last year. The production of Anthracite Coal for November was 3,501,487 tons, or 127,673 tons more than for the same month of last year, and for the 11 months ending November 30 the total output was 32,799,966 tons, an increase of 117,991 tons over last year. The amount of Coal on hand at tidewater shipping points on November 30 was 608,479 tons, a decrease of 24,619 tons during the month.

Two new railroads are going through the Indiana Coal fields, the Illinois Central to Brazie direct.

An extensive cave-in occurred at the Laurel Hill mine, four miles from Wilkesbarre, owned by the Delaware and Hudson Coal Company.

Allison O. Smith was appointed receiver for the Clearfield Creco Coal Company, of which ex-Senator Wallace is principal owner.

Thomas Thedford was elected president of the New York Retail Coal Exchange at its annual meeting. The membership numbers 167 firms.

The Pennsylvania Railroad reports for the year 11,251,000 tons of Coal, an increase of 829,000 tons. The Reading Railroad shipped 24,000 tons to Port Richmond last week and 20,000 tons to Port Liberty.

The miners' convention at Altoona, Pa., yesterday adopted a resolution that after January 1 the price of mining Coal in the districts represented shall be 50¢ ℔ net ton, the present price being 50 ℔ gross. Should the demand be refused a strike is expected.

Imports.

Hardware, Machinery, &c.

Boker, Hermann & Co., Mdse., cs., 24.
Briner Bros., Files, box, 1
Folk, J. E., Mach'y, cs., 1
Folsom, H. & D. Arms Co., Mdse., pgs., 3
Graef Cutlery Company, Cutlery, csc., 1
Hartley & Graham, Mdse., cs., 22
Schoverling, Daly & Gales, Mdse., pgs., 11
Seeger & Guernsey Co., Mach'y, pgs., 2
Taylor, Thos., Mdse., cs., 3
Werlemann, E., Mdse., pgs., 21
Wiebusch & Hilger, Mdse., pgs., 43
Wright, Peter & Sons, Arms, cs., 3

Metal Market.

Copper.—It is reported on very good authority that the Lake Superior mining companies have decided upon 15¢ ℔ lb as their price to the home trade for early 1891 deliveries. Whether any considerable orders have been placed up to the present time is not clear. Consumers, it is stated, are not inclined to make a "pool" purchase, however, but prefer to act individually, taking their chances on prices moving up or down in the future. Quotations equivalent to 14¼¢ here have been made in the foreign markets to attract export business, and rumor has it that 14¢ would very probably be accepted. A line of about 1,000,000 lb Tamarack is said to have been sold for export at about 14¢. For other varieties of Copper prices are as yet rather uncertain, there being little business. About 13¾¢ @ 14¢ for Arizona and 13¢ for common casting brands would appear to be near the mark.

Tin.—Prices for Straits Tin have further declined in this market, chiefly under the weight of lower quotations from London, at which point values have fallen about £1 during the week. Business of a speculative nature has been slow at the decline and purchases by jobbers and consumers have hardly reached the average volume for the season. For ordinary jobbing quantities, out of store, 20¾¢ @ 20⅞¢ is quoted at this writing. Ten-ton lots for prompt delivery were about 20.45¢ @ 20.55¢, net cash. January delivery was 20¢ bid, 20.35¢ asked, and February, 20¼¢ @ 20.35¢ on Tuesday at the Metal Exchange.

Lead.—There has been very little change in the Lead market the past week. Consumers have purchased sparingly, being well supplied for the present, and from other quarters the demand has continued light. Producers are sellers at the prices that ruled a week ago, but make no further concessions, and outside lots are offered no lower. For the present 4.05¢ bid, 4.10¢ @ 4.15¢ asked, would appear to fairly reflect market values.

Spelter.—The situation is practically the same as it was a week ago. Spot supplies are still light, and holders ask 6¼¢ @ 6½¢ for small quantities of prime Western out of store. Near shipments are quoted firm at 5.95¢ @ 6¢, and still offered with more or less reserve. The demand at present is slow.

Antimony.—For small parcels there is about the usual demand, but round lots are not inquired for. Prices are barely steady, with 19¢ quoted for Cookson's, 17¾¢ for L. X., and 16¾¢ for Hallett's.

Tin Plate.—The market has continued rather weak, in the face of advices of a firmer feeling at primary points, and neither spot stock nor futures have been taken in other than moderate quantities, even where seemingly attractive low prices were offered as an inducement. Quotations for large lots on the spot are as follows: Coke Tins—Penlan grade, IC, 14 x 20, $5.15; J. B. grade, do., $5.20. Bessemer do., $5.15. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.40; Siemens Steel, IC basis, $5.45 @ $5.50; IX basis, $6.50. IC Charcoals—Melyn grade, $6.12½; for each additional X add $1.50; Allaway grade, $5.75; Grange grade, $6; for each additional X add $1. Charcoal Ternes—Worcester, 14 x 20, $5.40 @ $5.45; 20 x 28, $10.50; M. F., 14 x 20, $7.87½; do., 20 x 28, $16; Dean, 14 x 20, $5; do., 20 x 28, $10.25; D. R., D. grade, 14 x 20, $4.75; do., 20 x 28, $9.50; Mansel, 14 x 20, $4.90; do., 20 x 28, $9.85; Alyn, 14 x 20, $4.90 @ $5; do., 20 x 28, $9.87½; Dyffryn, 14 x 20, scarce; do., 20 x 28, $10; Wasters—S. T. P. grade, 14 x 20, $4.60; do., 20 x 28, $9.25; Abercarne grade, 14 x 20, $4.55; do., 20 x 28, $9.25.

The Matthiessen & Hegeler Zinc Company of La Salle, Ill., under date of December 19, 1890, issue a new price-list for Sheet Zinc. The price has been reduced from $7 to $6.75 for 100 lb for Sheet Zinc in 600-lb casks, of the thickness between Nos. 9 to 15 inclusive, and of the widths between 32 to 46 inches, and of the lengths between 84 to 90 inches. The company announce the following:

Extras, in Cents per 100 Pounds.

Nos.	5	6	7	8	9	10	11	12	13	14	15
32 to 40 x 84	85	40	25								
32 to 46 x 84 to 90				05	none	none	none	none	none	none	none
52 x 84				110	85	70	45	45	45	45	55
50 x 84				80	65	35	25	25	25	25	30
48 x 108				80	65	40	10	10	15	15	15
48 x 96				35	15	05	none	none	10	10	20
48 x 84				15	10	none	none	none	10	10	15
36 x 108				40	25	15	05	05	05	05	10
36 x 96			75	50	20	10	05	none	none	none	05
30 x 84			65	50	15	05	05	none	none	none	none
28 x 84			80	55	25	20	05	none	none	05	05
26 x 84			85	65	35	30	15	10	10	10	15
24 x 84			100	85	10	05	none	none	none	05	05	10

The discount on sheet Zinc is as follows, subject to change without notice:

Discounts.	First class. 15 600-lb casks and upward.	Second class. 10 to 14 600-lb casks.	Third class. 5 to 9 600-lb casks.	Fourth class. Under 5 600-lb casks.
	Per cent.	Per cent.	Per cent.	Per cent.
Special...	0	0	0	0
Cash with order...	3	3	3	3
Quantity.	3	2	1	0
Totals..	6	5	4	3

New York Metal Exchange.

The following sales are reported:

FRIDAY, December 19.

50 tons Tin, January .....20.35¢

MONDAY, December 22.

25 tons Tin, January.....20.20¢

TUESDAY, December 23.

10 tons Tin, March.....20.30¢
10 tons Tin, December.....20.15¢
25 tons Tin, January.....20.10¢
25 tons Tin, ex S. S. Duro, C. A. D.....19.95¢

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, TUESDAY, December 23, 1890.

Operations in Pig Iron Warrants have been dull. The approaching holidays tend to check operations through causing general general slackness in business. Producers are forcing stocks down with a view to establishing a higher level of prices. The damping of some Cleveland furnaces caused slightly freer buying of Cleveland warrants, under the effect of which prices recovered from 42/7½ to 43/. Latest sales of Scotch were at 46/3 @ 46/6 and Hematite at 54/ @ 54/6.

The Pig Tin market was firm early in the week, under the influence of the advance in the price of silver and small shipments from the Straits that led to freer purchases of futures. Later the movement turned in the opposite direction, and prompt delivery sold off to £91. 2/6.

Copper warrants have reacted from £54. 10/ early in the week to £52. 7/6, and the market is at present unsettled. A want of confidence is shown by outside holders, who are affected by uncertainty as to the policy of financiers who control a large amount of the stock held here. Consumers are light buyers, although their reserves are very low.

At the trial on the 18th inst. of the case of the mining companies *vs.* the Société des Métaux, the contracts were declared void.

The demand for Tin Plate has been better, and prices have improved somewhat. Many makers are confident of an upward movement in January and refusing to quote.

There has been more activity in the Steel trade. An order for 18,000 tons for an Indian railway has been secured by Bolckow, Vaughan & Co., and the Magdeburg Railways of Germany have ordered 8000 tons, seller's name not reported. A larger trade in Ship Plates is also noted.

Scotch Pig Iron.—Dealings in makers' Iron are moderate, but prices are firm, owing to diminished supplies.

No. 1 Coltness,	f.o.b.	Glasgow	..
No. 1 Summerlee,	"	"	67/6
No. 1 Gartsherrie,	"	"	..
No. 1 Langloan,	"	"	..
No. 1 Carnbroe,	"	"	51/6
No. 1 Shotts,	"	at Leith	..
No. 1 Glengarnock,	"	Ardrossan	..
No. 1 Dalmellington,	"	"	50/
No. 1 Eglinton,	"	"	48/6

Steamer freights, Glasgow to New York, nominal: Liverpool to New York, 10/.

Cleveland Pig.—Makers' Iron is in limited demand, but holders are firm, and quote at 43/ @ 43/3 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—There has been rather more demand, but prices are still irregular. Makers quote 55/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Spiegeleisen.—Former prices rule, and the demand continues fair. English 20 % quoted at 100/, f.o.b. shipping port.

Steel Rails.—There has been more business, but prices have undergone no change. Heavy sections quoted at £4. 17/6 and light sections £6, f.o.b. at N. W. England shipping point.

Steel Blooms.—The demand very moderate and prices without change. Makers quote at £4. 15/ for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—The movement has been smaller, but makers hold for previous prices. Bessemer, 2½ x 2½ inches, £5, f.o.b. at N. W. England shipping point.

Steel Slabs.—Demand is slow and prices are unchanged. Bessemer quoted at £5, f.o.b. at N. W. England shipping point.

Old Iron Rails.—There is very little doing and sellers have named lower prices. Tees quoted at £3 @ £3. 2/6 and Double Heads £3. 2/6 @ £3. 7/6, f.o.b.

Scrap Iron.—No improvement in the demand nor any change in sellers' figures. Heavy Wrought quoted at £2. 5/, f.o.b.

Crop Ends.—The market very quiet and without change. Bessemer quoted at £3 @ £3. 2/6, f.o.b.

Tin Plate.—Improved demand gives the market more tone and holders ask higher prices. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	18/9 @ 19/
IC Bessemer Steel, Coke finish	@ 17/9
IC Siemens " " "	@ 18/
IC Coke, B. V. grade	@ 17/3
Charcoal Terne, Dean grade	17/3 @ 17/6

Manufactured Iron.—Aside from a slight reduction on Black Sheets there has been no further change in prices. Business continues slow. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars				@	9	0	0
" Common "				@	6	15	0
Staff. Bl'k Sheet, singles				@	7	15	0
Welsh Bars (f.o.b. Wales)	6	2	6	@	6	5	0

Tin.—The market dull at the close, with prices barely steady. Straits quoted at £91. 2/6, spot, and £91. 12/6 for three months' futures.

Copper.—Demand light at the close and the market rather weak. Merchant

Bars quoted at £52. 7/6, spot, and £53. 2/6, three months' futures. Best Selected, £60.

Lead.—Business has been light and prices show little change. Quoted at £12. 15/ for Soft Spanish.

Spelter.—Demand has continued slow and prices are rather in buyers favor. Quoted at £23. 5/ for Ordinary Silesian.

Connellsville Coke Reduced.

By Telegraph.—Connellsville Coke has been reduced to $1.90.

Damage Allowance on Tin Plate.

In the matter of the protest, No. 233 *b*, of Schultz & Hosea, against the assessment of duty by the Surveyor of the Port of St. Joseph, Mo., on merchandise imported by them August 26, 1890, per Thames, September 12, 1890, the Board of United States General Appraisers has rendered the following decision:

The appellants paid duty on a certain consignment of tin, consisting of 329 boxes, which arrived at New Orleans on August 26, 1890. Of this cargo 1789 pounds were damaged by salt water and rust, so as to render it unfit for use. The importers contend that there should have been no duty exacted on the damaged portion of the tin.

The question is settled by Section 23 of the act of June 10, 1890, which reads as follows:

That no allowance for damage to goods, wares and merchandise imported into the United States shall hereafter be made in the estimation and liquidation of duties thereon, but the importer thereof may, within 10 days after entry, abandon to the United States all or any portion of goods, wares and merchandise included in any invoice and be relieved from the payment of the duties on the portion so abandoned, provided, that the portion so abandoned shall amount to 10 per cent. or over of the total value or quantity of the invoice, and the property so abandoned shall be sold at public auction, or otherwise disposed of for the account and credit of the United States under such regulations as the Secretary of the Treasury may prescribe.

The manifest purpose of this section is to abolish allowances for damages, which were provided for by Section 2927 of the Revised Statutes, page 566. Under the present law, which was in force when the importation in question was made, no such allowance can be made except on the condition precedent of a formal abandonment to the United States of the portion of the merchandise claimed to be damaged, provided this portion shall be 10 per cent., or over, of the total value or quantity of the invoice. In such case only can the importer be "relieved from the payment of the duties on the portion so abandoned." Where the ratio of damage is less than 10 per cent, no allowance or deduction of duties is authorized.

In this case there is no pretense that there was any offer to make such abandonment. The amount of damage, so far as we can justly approximate it, seems in fact to fall below 10 per cent. In any aspect of the case, therefore, no right accrued to a deduction of duties on the portion of the tin alleged to be damaged.

The decision of the surveyor is affirmed.

Reuben J. Flick, the well known banker and business man of Wilkesbarre, Pa., died on December 18 of blood poisoning resulting from kidney trouble. Deceased was born at Flicksville, July 10, 1816. He was director in many of the prominent manufacturing industries of the city, including the Vulcan Iron Works, the Iron Bridge Company, the Penn, Lehigh and Eastern Railway Company, and was a trustee of the City Hospital and the Home for the Friendless. He was also a trustee of the Board of Trade, of the Female Institute, and of the Lincoln University of Oxford, Pa.

New England Notes.

Efforts are being made to organize and locate a new sewing machine plant at Bridgeport, Conn.

The Nashua Iron and Brass Foundry, at Nashua, N. H., is increasing its capacity.

James H. Sheridan, who has been foreman at the Pettee Machine Works, at Newton, Upper Falls, Mass., for the past 15 years, has severed his connection with that company.

Application has been made to the Shelton Probate Court, by the creditors of the insolvent Birmingham Plane Company, for permission to look over the books of that company. These creditors claim that something must be wrong when the assets amount to but $6000, while the liabilities reach nearly $40,000. It is alleged that the officers of the company have brought in very large bills for back salaries.

J. B. Crawford and C. S. Burke of Boston, Mass.; G. A. Smith of Philadelphia, Pa., and others, have recently organized the Southern Iron and Timber Company at Newport, Tenn., and will, it is stated, erect six wood working factories, a tannery, shoe factory and a $300,000 iron plant.

A company composed of Massachusetts and Philadelphia parties has purchased from the Holmes Mfg. Company of Providence, R. I., the right to manufacture the Holmes' lubricant bearing in the United States. The price paid is said to be several hundred thousand dollars.

NEW PUBLICATIONS.

GEOLOGICAL SURVEY OF NEW JERSEY. Report of the State Geologist. Second Volume. Second Part (Vol. II, Part II) of the Final Report. Zoology. Large 8vo, 824 pages.

This volume contains a full catalogue of the insects and of the vertebrates found in New Jersey. *The Iron Age* has specially noticed the first volume of this report. The insects have been catalogued by John B. Smith, the vertebrates by Julius Nelson, Ph.D. Mr. Smith has gathered his collections through numerous persons interested in insectology, living in New Jersey and Philadelphia, who made their field of collection in New Jersey, and has added to all lists largely from his own collections and experience. There have been listed 6098 species, embraced in 238 families and 2307 genera. The Linnean orders have been followed rather than the more numerous divisions of Braner or Packard. The descriptive catalogue of the vertebrates is a revision with numerous changes in nomenclature and classification of Dr. Charles C. Abbott's catalogue of the vertebrated animals of New Jersey, which was published as "Appendix E, Geology of New Jersey, 1868." This was a valuable and laborious collection, and yet it has been no slight work to note the changes made in 20 years. A description of each species has been added, especially as to the features distinguishing it from its allies, where easily confounded by the general observer. The birds and fishes have been distinguished in this way to aid the sportsman and angler who may desire to identify species. Technical and anatomical terms have been as much as possible avoided. The manuals of the vertebrates of the Northern United States by Professor Jordan, and of the birds of North America by Robert Ridgway, and the synopsis of the fishes of North America by Jordan and Gilbert, have each been freely used in this part. A great amount of interesting information in natural history has therefore been succinctly given in this report, which makes it desirable to every intelligent farmer, physician, sportsman and other practical and zealous students of nature.

HOWSON & HOWSON PATENTS. 12mo, pp. 86, 1890. Geo. H. Buchanan & Co., Philadelphia.

This is a formal circular by these well-known attorneys at law and solicitors of patents, with offices in New York, Philadelphia and Washington, D C. It gives in concise and intelligible language the information that one seeking for a patent for his invention needs to direct his uncertain steps in the Interior Office and to throw light on the mysterious ways of Patent Office officials. The points of law most involved are clearly made, and the manual will prove of service from the large experience which has suggested it.

BIBLIOTHECA POLYTECHNICA. First annual issue. Edited by Fritz von Szczepauski. Size 5½ x 7½; 80 pages; crown 8vo; cloth. Published by the International News Company. Price 75 cents.

This little work, as its name indicates, is a directory of technical literature, consisting of a classified list of all books, annuals and journals published in America, England, France and Germany, including their relations to legislation, hygiene and daily life. It has been compiled with a great deal of care, and will be found a useful book of reference for all publications of a technical character. The catch words are presented in three languages—English, French and German—thus greatly facilitating reference and increasing its value in a corresponding degree. The work is plainly printed upon good paper and bound in a durable manner.

POPULAR MECHANICS. The English and American Mechanic and Every Day Hand Book for the Workshop and the Factory. By B. Frank Van Cleve. New, Revised, Enlarged and Improved Edition, edited by Emory Edwards, M. E., illustrated by 85 engravings, 5 x 7½ inches, bound in cloth; 475 pages. London: E. & F. Spon. Philadelphia: Henry Carey Baird & Company. Price $2.

The use of engineers' hand books is gradually extending. Formerly it was restricted to professional men and to students; more recently the business man and the mechanic have learned how to employ them advantageously, but there still remains a wide gulf between the every day wants of a mechanic and business man of ordinary education and attainments and the extreme formulæ with with which the engineers' books abound. Again, there is a large amount of information omitted from these volumes, comprehensive though they be, that is daily required. Hence the need of such a volume as that before us, and which bears the broad and significant title "Mechanic." It is a very handy book for the workshop and the factory, and abounds in receipts, rules and tables indispensible to the mechanic, the artisan and the manufacturer. The original work, which attained considerable popularity, has been revised by Emory Edwards, the well known author of a number of works relating to the steam engine, and has been adapted to the wants of American as well as English readers. The book may be described as an encyclopedia of useful technical knowledge, so arranged and indexed as to be valuable for almost every purpose. At the outset practical geometry is introduced, and a number of problems are presented which are absolutely necessary to the mechanic in almost every line. Applications are made to sheet metal work, giving it a special value in that direction. Following is a miscellaneous collection of tables, epitome of mensuration, a chapter on the

slide rule, some pages devoted to the steam engine, a chapter on belts, strength of materials, a chapter on gearing, &c. The new matter appears in the form of addenda, and includes still further diagrams of sheet metal work. The addenda also contains a short chapter on algebra and a large number of tables arranged under the significant title of "Wrinkles for Engineers." Part II of the book is devoted to rare and valuable receipts and tables. The addenda to Part II is devoted to alloys, bronzing, cements and mortars, lacquers, &c. As already mentioned, there is a very complete index to the book, thus increasing its usefulness.

The Largest Pneumatic Gun.

Taunton, Delmard, Lane & Co. of Birmingham, England, are just finishing the largest dynamite gun which has yet been made. The designing and construction of the gun have been carried out by Mr. Lane, engineer to the company, under the supervision of the inventor, Lieut. J. W. Graydon of the United States Navy, who has been residing in Birmingham with that object. The contract with Taunton & Co. is for a 15-inch torpedo projector which will throw a charge of 600 pounds of dynamite a distance of 3 miles; but it is expected that this contract will be followed by orders for still larger weapons. As soon as the gun now in hand is delivered there will be a trial of its powers at Portsmouth against the Zalinski gun, not with dummy shells, as in the case of the American experiments, but with actual charges of dynamite. The noise of the discharge being small the projectile might be dropped into a fort or on to a ship without giving the besieged any intimation of the quarter from which the attack came. The concussion when the dynamite exploded would in all probability be violent enough to put a large garrison *hors de combat*, even if they were not wounded by *débris*; and, truly aimed, a single shell would destroy an ironclad. The barrel, or pneumatic tube, of the gun is of Whitworth forged steel, and weighs about 11 tons. The discharging valves are a peculiar arrangement of the piston type, and are packed on the hydraulic system. All valves and pipes, where not forged, are of Whitworth cast steel. The carriage on which the barrel is mounted is constructed of heavy steel plates, with massive trunnion bearings of cast iron secured to it by means of numerous turned bolts. The carriage is supported on the roller path with conical rollers, geared together and actuated by a Heenan and Froude spherical engine, the motive power of which also is compressed air. The roller path, which will ultimately be imbedded in concrete, is made in sections of cast iron. It is 21 feet in diameter, and is planed on its surface.

Grateful Germans.—Hon. Abram S. Hewitt, president of the American Institute of Mining Engineers, has received the following cable dispatch, signed by President Lueg, of Oberhausen, dated December 21: "Five hundred members assembled in meeting of the Verein Deutscher Eisenhuettenleute send hearty and thankful greeting." The meeting in question is the first of two which will be particularly interesting to Americans, since leading members of the party visiting this country will report to their associates. A. Thielen will make the introductory remarks. J. Schlink and A. Schilling will speak on the blast furnace practice, ore and coal resources and methods of transportation, and A. Spannagel on steel manufacture and rolling mill practice. The same subject will be treated at the second meeting, January 11, by R. M. Daelen. E. Klein will deliver a paper on rolling mill machinery, while Haedicke will review the manufacture of hardware and E. Macco is to speak on American railroads.

The United States Rolling Stock Company.—Adolfo Hegewisch, as receiver of the United States Rolling Stock Company, was authorized to-day by Judge Blodgett, in the United States Court, to issue receiver's certificates to prevent the sale of capital stock of the company put up as collateral security. The unfunded and unsecured indebtedness of the company consists of $470,666 in bills payable and $347,918 in open accounts, all incurred for materials, supplies and services rendered prior to the receiver's appointment. Collateral loans made by the company from various banks aggregate $351,608, and securities given consist principally of Car Trust or equipment bonds, amounting to $490,214. A loan of $48,666, held by Crews, Lichstentadt & Co., due December 1, is secured by a deposit of about $450,000 of the capital stock of the company as collateral. The receiver says that the excess of the assets of the company over its liabilities is over $2,000,000.

The plant of the Huntingdon Car and Car Wheel Works at Huntingdon, Pa., operated by the Iron Car Equipment Company of New York, was closed down on Saturday, the 20th inst., preparatory to the sale thereof, on Tuesday, January 6, 1891, by the trustees recently appointed by the court. All outstanding claims have either been liquidated or satisfactorily provided for, and it is probable that the Iron Car Equipment Company will buy in the plant at the trustees' sale.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Paints and Colors.

The dullness incidental to trade in Paints and Colors at this season of the year is the only conspicuous feature of the market at the present time. Probably inaction is more prominent than usual in some departments, as the monetary situation has more or less bearing, while the uncertainty as to what reduction, if any, will be made in prices of White Lead tends to restrain operations, not only in the pigment itself but in various other Paints, the value of which is affected more or less by the cost of White Lead. Prices of Colors in Oil are, as a rule, adjusted to the reduced cost consequent upon the decline in prices of Linseed Oil, and the situation in that branch is in shape for business immediately after the holidays, by which time, it is believed, the matter of White Lead prices will also be settled.

White Lead.—No change is yet announced in corroders' prices for pure pigment, and the corroders do not encourage the belief that a revision is contemplated, although the trade have for some time considered it a foregone conclusion. Manufacturers of cheap Leads are doing nothing pending information on the subject, and the movement of all varieties of Lead is on a very small scale.

Red Lead and Litharge.—The list prices remain unchanged, and are generally adhered to by sellers on what little business passes. At the present time orders are small and come in slowly.

Zincs.—The deliveries of American Oxide to large consumers continue liberal, but there is little new demand from any quarter. The distribution by jobbers is light. Supplies are in good shape at first hands and prices remain firm. Foreign Zincs remain without change in price, and are selling to a moderate extent only.

Colors, &c.—Fair purchases have been made of some lines of grinders' Colors, but speculations in house painters' Colors, Dry or in Oil, are of small volume. Prices show but little and unimportant variation. The demand for Ready Mixed Paints is light.

Miscellaneous.—Block Chalk in bulk is is quoted at $2.35 @ $2.50, ex-ship, and sells from store at previous prices. Whiting is steady, as is also Paris White, but rather slow of sale.

Oils and Turpentine.

Linseed Oil.—A sharp decline in the price of domestic Flaxseed has served to cause renewed pressure of Western Linseed Oil for sale in various Eastern markets, and offers at the lowest prices quoted last week have been frequent. It does not appear, however, that the product has been sold in any considerable quantities in this locality. Comparatively few buyers are in a position to handle carload lots, on which alone the extreme low prices are quoted, whilst the 3¢ ℔ gallon rebate allowed by city crushers on the return of package, the uniformity and superiority of quality, the fact that every package contains all the Oil it is supposed to, and various other favorable conditions, cause city brands to be given a preference over Western at a difference of 4¢ @ 6¢ ℔ gallon in gross price; hence crushers keep their figures at 58¢ for domestic Seed and 62¢ for Calcutta Seed product, in the face of offers of Western at 52¢ @ 54¢, and rumors that as low as 50¢ would be accepted on orders for carload lots

Cotton Seed Oils.—Business has been of very much the same general character as it was during the preceding week, and the market is devoid of new features. A considerable quantity of both crude and refined product has arrived, and been delivered on back orders, but neither exporters nor home buyers have made other than moderate-sized new purchases. Strictly prime quality Oil continues scarce, and is firmly held at full prices, but plenty of inferior quality can be secured at old figures.

Lard Oil.—Raw material has ruled lower in price, but no further change in quotations for Oil have been made by sellers of either city or out-of-town brands. The demand has fallen off somewhat, but is probably up to the average volume for the season.

Fish Oils.—There has been very little movement of crude Sperm Whale or Menhaden Oils. Supplies are in about the same position that they were about a week ago, and prices are without change. The manufactured goods are moving fairly in moderate quantities at former prices.

Miscellaneous.—Cocoanut Oil is offered to arrive, ex-ship nearly due, at slightly lower prices, but store parcels are held at old quotations. Olive and Palm Oils remain quiet and unchanged. Western Saponified Oil has been sold to the extent of about 100 barrels at 4⅛¢ @ 4¼¢ here, to arrive.

Spirits of Turpentine.—During the week under review Turpentine, in O. D. barrels, was sold at 37¼¢ @ 37½¢, and stock in machine barrels at prices relatively nearly as low. This reduction led to purchases under which receivers' stocks were cut down to the extent of several hundred barrels and prices reacted to 38¢ @ 38¼¢, closing fairly firm.

HARDWARE.

Condition of Trade.

WITH THE ADVENT of the holiday season, travelers at home, the trade purchasing only for the supply of their immediate needs, and manufacturers and merchants being occupied closing up the year's accounts and making their plans for the coming season, the volume of general business is reduced to a minimum. There has been a good holiday trade, which still continues in fair volume, and the seasonable winter weather stimulates the sale of Skates, Sleds, &c. But while the market as a whole is quiet, large buyers are giving attention to lines which, on account of low prices ruling, are regarded as a safe purchase.

Chicago, by Telegraph.—Business in Shelf Hardware is now tapering off as the end of the year approaches, and an air of unwonted quiet pervades establishments which have for five months been the scene of unabated hustling to get out orders. This is not because the demand for goods has shrunken, but salesmen are now withdrawing from the road for the holiday season or coming into headquarters to talk over the campaign of '91. Mail orders are being received to an encouraging extent, and jobbers look forward to another season of good trade after the new year has fairly opened.

Prices.

Barb Wire.—As usual at this time of the year, the local demand is sluggish and prices are rather weak. Quotations for small lots in New York are 3.25 to 3.35 cents for Galvanized Four Point, Painted being held at 2.75 to 2.85 cents.

Chicago, by Telegraph.—Conditions are practically the same as those prevailing last week. Manufacturers report a heavy demand, especially from the South, while jobbers are having a quiet trade. Carload lots of Painted are quoted at 2.70 cents, and Galvanized 3.25 cents, while jobbers quote 2.80 cents and 3.40 cents for small lots.

Wire Nails.—The price for small lots from store is $2.40 to $2.45, carload lots from factory being quoted generally at $2.15, though in some exceptional cases $2.10 is made. It is reported that some very large orders from Western jobbers have been placed, aggregating something like 50,000 kegs, at a close price. The volume of general business is referred to as fair, the trade showing a disposition to avail themselves of the prevailing prices.

Chicago, by Telegraph.—Wire Nails are in good demand, both from mill and from stock. Large inquiries are being received from heavy buyers for next year's delivery. Jobbers report a heavier carload trade than for a long time. The low prices have stimulated buying, and country merchants are laying in good stocks. Factories have been unable to advance prices owing to the competitions of new works, and extremely low rates are still reported on heavy contracts. Carload rates Chicago are now $2.25 to $2.30 and small lots from stocks sell at $2.35.

Cut Nails. — The condition of the market, while its general features are substantially the same as at our last review, is apparently improved in some respects. It is characterized by a somewhat firmer tone, and there are indications of a disposition on the part of the mills, after disposing of their stocks, to suspend operations rather than to continue to make the low prices now ruling. A meeting of the Atlantic Nail Association was held a few days ago, not so much for the making of a change in prices as to confer in regard to the situation, and while no formal action was taken, it is thought that a somewhat conservative policy will be pursued. Quotations are on the basis of $1.80, f.o.b. New York, for Iron or Steel Nails, small lots from store being held at $1.85 to $1.90 for Iron, the usual 10 cents additional being asked for Steel.

Chicago, by Telegraph.—The demand for Steel Nails is, generally speaking, very light both as to large and small lots, but some heavy buyers are now in the market for exceptionally large amounts, evidently believing that the present is a good time to place contracts for next season. Low as present ruling prices are, they expect to purchase considerably cheaper. The Wheeling Mills quote $1.70 at mill for usual average, but local makers name $1.75, Chicago. Small lots are selling from store at $1 85.

Cordage.—Since our last report there has been a further decline in the price of Manila Rope, which is now quoted at a basis of 11¼ cents, subject to the usual trade discount. The revised prices are as follows, from which it will be understood that the discount of ¼ cent per pound is made to the trade; terms, f.o.b. factory:

	Per lb.
Manila, ½ inch and larger	11¼¢
" ⅜ "	12¼¢
" ¼ and 5/16 inch	13¼¢
" Tarred Rope	11 ¢
" Hay Rope	11½¢
Sisal, ½ inch and larger	8 ¢
" ⅜ "	8½¢
" ¼ and 5/16 inch	8¼¢
" Hay Rope	8 ¢
" Tarred Rope	7½¢
" Medium Lath Yarn	7 ¢
New Zealand, ½ inch and larger	7¾¢
" " ⅜ "	8¼¢
" " ¼ and 5/16 inch	9½¢
" " Hay Rope	7¾¢
" " Tarred Rope	7½¢

As indicated in this further decline, the market is in a weak and unsatisfactory condition, and several causes are operating to produce this state of things. It is understood that the National Cordage Company are leading in the reduction of prices, with a view, it is thought, of inducing outsiders to join the combination; but the outside companies are meeting the prices made by the associated manufacturers.

Shot.—There has been no change in the prices of Shot since our last issue, the Eastern manufacturers quoting at the figures then named. The following prices were announced by Gulf Shot and Lead Works, New Orleans, under date December 12, the prices being subject to a discount of 2 cents per bag, 25 pounds, if paid within five days from receipt of bill:

Drop Shot, per bag, 25 pounds	$1.30
Buck and Chilled Shot, per bag, 25 pounds	1.55

Miscellaneous.—The Easy Horse Shoes manufactured by the Burden Iron Company, Troy, N. Y., are sold at $4.25 per keg; terms f.o b. Troy, N. Y.

Miners' Lamps—Hunt & Connell, Scranton, Pa., are manufacturers of a line of Miners' Lamps of different patterns. Their Solid Spout Miners' Lamps, tin body and spout (in one piece), brass collar and breast (in one piece), are sold at $9 per gross, and the same styles all brass, for surveyors' use, at $3 per dozen.

Trade Items.

THE HARDWARE AND MANUFACTURERS' ASSOCIATION of Philadelphia held their annual banquet at the Manufacturers' Club, 1409 Walnut street, last Thursday evening. There were 30 members present, also 16 invited guests, including some from New York and Boston. The floral decorations were beautiful, while the music was furnished by one of the best orchestras in the city. It was pronounced by all who were present as being the finest entertainment yet given under the auspices of the association, and the feeling was general that a few hours spent together in this way did more to promote good feeling and a better appreciation of each other than a dozen meetings "to fix prices." It is suggested that it would be a good thing if other cities would, in this respect, follow the example of Philadelphia.

THE MARLIN FIRE ARMS COMPANY, New Haven, Conn., are sending out cards to be hung in business houses, calling attention to their Fire Arms. These cards have a black back ground with the words, Marlin Safety Repeating Rifles, in raised white letters; also a representation of one of their repeating Rifles, raised, in black and white. The card is striking in appearance and can be seen at quite a distance.

ANNOUNCEMENT IS MADE that on January 1 the Burger-Alexander Hardware Company, jobbers and importers of Hardware, Tin Plate and Cutlery, Hastings, Neb., will consolidate their stock with the Denver Hardware Company of Denver, Col., under the firm name of Denver Hardware Company. We are advised that the former have a paid-up capital of $100,000 and the latter of $150,000, so that the consolidation of the two companies will form a jobbing house creditable to Denver and in a position to cultivate efficiently the important territory of which that city is the center. We are advised that the new concern will increase their force of traveling salesmen and extend their trade into territory that has not yet been canvassed by Denver jobbers. George H. Corning of Denver, Col., will be president and P. S. Burger of Hastings, Neb., vice-president and general manager. We are advised that Mr. Burger, the founder of the Burger-Alexander Hardware Com-

pany, has been engaged in the Hardware business for 15 years and is thus familiar with it in all its details. The business of the Burger-Alexander Hardware Company will be closed by their secretary and treasurer, M. L. Alexander, Hastings, Neb.

IN CONNECTION with the Barb Wire litigation, to which reference was made in our last issue, circulars have been sent out respectively by Washburn & Moen Mfg. Company and St. Louis Wire Mill Company, the former after the granting of the injunction by Judge Allen, and the latter on its dissolution. In these circulars reference is made to the matter as seen from the standpoint of the different parties, and referring, in addition, to the general features of the litigation with which the trade are familiar.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn., New York and San Francisco, have issued an attractive calendar for 1891. It is 15 x 24 inches, with metallic end, which is largely filled with hunting scenes in color. Across the center of the card is the word "Winchester" in prominent letters, surrounded by evergreen boughs. The arrangement of matter, combination of color and the pleasant effect produced as a whole makes it an attractive calendar.

THE NUMEROUS FRIENDS of A. C. Bartlett, vice-president of Hibbard, Spencer, Bartlett & Co. of Chicago, will regret to learn of the decease of his wife on the 19th inst. Mrs. Bartlett had been an invalid for some time. She was a native of Vermont, but had removed with her parents to Wisconsin at the time of her marriage to Mr. Bartlett in 1867.

OUR READERS will note the change in address of the Nubian Iron Enamel Company in their advertisement in this issue. They are now located at Cragin Station, Chicago, where they occupy works with ½ acre of ground under roof and plenty of additional space to build on if that is not enough. Although driven out of their old quarters by fire, they would have been obliged to move next spring at the furthest to secure more room for their continually expanding trade. Their New York office remains at 77 Warren street, and Hall & Carpenter of Philadelphia carry a full stock for that section.

WILLIAM F. RUSSELL, who has been for many years connected with Wallace & Sons, New York, has made an engagement with the Brooklyn Brass and Copper Company, John Davol & Sons, 100 John street, New York agents.

THE ADVERTISEMENT of Storrs & Candee, Hartford, Conn., on another page of this issue, will be of interest to our readers, as an opportunity is thus offered to a dealer in Tools and Shop Supplies to combine with another dealer in the same line in issuing a catalogue, and by so doing making a saving of nearly one-half.

THE MORRIS HARDWARE COMPANY, Youngstown, Ohio, are about to erect a new building for the accommodation of their enlarging business. It will front 45 feet on Federal street, with a depth of 180 feet, an L 90 feet in length extending it to Market street, on which the frontage will also be 45 feet. The four floors of the building will thus each have an extreme length of 270 feet. The establishment will be fitted with two hydraulic elevators, one for freight and one for passengers, and will be equipped with all the latest improvements known to the Hardware trade.

WE UNDERSTAND that the establishment of the Matthews Mfg. Company, Worcester, Mass., manufacturers of pipe collars, radiator foot rests, ferrules, stove trimmings and other seamless sheet metal specialties, is a direct outcome of the dissolution of the Worcester Ferrule and Mfg. Company, which occurred last spring, when A. T. Matthews withdrew from that company, and with John Reed and F. E. Reed formed a copartnership known as the Matthews Mfg. Company of 116 Gold street, Worchester, Mass. The machinery owned by this company, it is said, consists of the latest improvements for the manufacture of these goods and enables them to turn out a high grade of product at a reasonable cost.

W. F. FAAS, having retired on account of failing health from the firm of W. F. Faas & Co., Minerva, Ohio, and J. A. Grinder and W. H. Taylor having each purchased a third interest in the business, the firm name has become Roller, Taylor & Grinder.

W. M. CALDWELL, 75 Chambers street, New York, notifies the trade that he has severed his connection with Mason & Parker, Winchendon, Mass.

Trade Topics.

A CORRESPONDENT of *The Office* makes the following suggestion with reference to a simple method which might be adopted to facilitate collections:

A business manager is often called upon to give a customer who is backward in payments a gentle hint of the fact, and yet not so pointed as a letter would make it. A method the writer has found of value is to take the statements as they come from the bookkeeper, and "arrow" the terms of the sale, referring to same by printing a rubber stamp of a hand beneath this, as shown in the following copy:

June	3	*To Acct. as rendered*.....		
		To Mdse. at 30 days, as per bill rendered.....	49	80

This has the appearance of being an offhand request for payment; at the same time, it is thoroughly significant. I can recommend it to others in cases where the customer is a good one, though slow, and requires to be handled with care—like packages marked "glass."

The following advices from Foster & Robertson, Portland, Ore., will be read with interest, referring as they do to the condition of business and giving information in regard to other trade matters:

With the exception of a slight decline in the price of Bar Lead, there have been no changes in prices during the last two weeks. The sales of Wostenholm's Pocket Cutlery have fallen off considerably, owing to the advanced prices. The trade in Sheet Iron, Tin Plate and other metals has been very active and at firm prices. The stock of Iron Pumps and Gas Pipe has been, if anything, a little short of the demand. There has been considerable movement of Blasting Powder, Gun Powder, Loaded Shells and other fixed ammunitions. Orders from travelers continue equal in volume to October and November, while the mail orders are even larger. Since our last communication the railroads have done better in the matter of furnishing transportation, and wheat is moving in a measure, with prospects of increased movement in the next few weeks. Naturally, collections have improved and the outlook is very good indeed. The year's business, both as to volume and profits, is generally regarded as very satisfactory, both by jobbers and retailers. There have been some changes on the part of the retail trade in the last two or three weeks. Messrs. Bilger and Goeing, two well known coast travelers, the former representing for a number of years Messrs. Honeyman, De Hart & Co., and the latter Messrs. Goldsmith & Loewenberg of this city, have purchased the business of S. Williams, at Olympia, Wash., and doubtless with the thorough experience which both men are possessed of, will greatly enlarge the same. Messrs. Hunt & Chapman, formerly of Hastings, Neb., have succeeded R. H. Thompson of this city, and, together with increased stock and Eastern methods, are in a fair way to capture a goodly portion of the retail Hardware trade of this city.

An inquiry from a merchant, which appears in a recent issue of the London *Ironmonger*, will doubtless be of interest, in which he seeks a remedy from moisture condensing on show windows. He says:

My shop has three front windows. The goods in one of them are incased with glazed sashes; in another they have no protection from the shop; and in the third, which is a small window where I exhibit my best Cutlery and Plate, they are in a glass case, which I believe to be perfectly air tight. During wintry weather the exterior plate glass window of one and all becomes covered with condensed moisture inside, so that the contents are hardly visible from the street, and I fear they will be damaged. The shop is kept rather warm by hot water pipes; still I think there is plenty of ventilation through it.

The difference in temperature between the inside and the outside air is the cause of moisture condensing on the glass and consequent frosty windows. It may be some of our readers have found a solution of this trouble, and applied a satisfactory remedy.

Export Notes.

WE ARE ADVISED that large export orders for Europe of Hay and Manure Forks have been placed for 1890-91. It is stated that this trade was for a time checked or diminished by the production in Germany of the American style of forks at very low prices. The German forks have proven of very inferior quality, and the superiority of the American goods is again giving them the English and Continental markets.

Consul Turner of Cadiz, Spain, expresses a belief that Spain is an excellent market for the introduction of American farm machinery. At present their implements are of the most primitive kind, and thousands of untilled acres are awaiting the advantages of improved machinery. A large acreage of land within that country does not yield more than 40 per cent. of its capacity, although the needs of a very large population are to be supplied. The unremunerative farms could be made as productive as well tilled sections of this country by the use of our implements. The English and German tools at present take the lead, while of the large assortment of machinery in this country only the "harvester" and "cultivator" manufactured here have found there way to Spain. The Plows and Harrows of the English are finding ready market in preference to German tools, which are cheaper, though much inferior to the English in durability.

Elbel & Co., Canton, Ohio, manufacturers of Saddlery Hardware, have issued a Spanish catalogue and price-list of their goods. It is fully illustrated and contains about 90 pages. It is intended for export trade and may be had upon application by the houses who deal in these goods. A discount sheet accompanies the catalogue.

Arrangement of Stores.

WE GIVE BELOW the conclusion of description of the Hardware store of John Bellamy, 27 Eliot street, Boston, the first part of which was published in our last issue:

A case displaying Forstner Bits stands back of the show window on the right of the structure with samples of the work

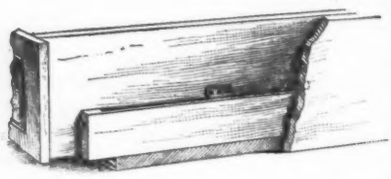


Fig. 640.—Slide Used on Drawers throughout the Store.

they are capable of doing. This and another case containing small tools closes the passage way to the back of the counter. Shelving extends along this side of the room to the steps, with cases, drawers, boxes, &c., arranged with especial reference to the class of goods they contain. A case for Files, 32 inches wide and 36 inches high, contains 90 drawers, 3 inches wide and 2½ inches high. These drawers are 18 inches deep, part being partitioned to take two sizes of Taper Files. A description giving the name and size of the Files contained in each drawer is painted on the strip above the drawer. Small brass knobs are used as drawer pulls, and the face of the drawers is stained a dark cherry color. Above this case are heavy pasteboard boxes, covered with green paper, containing Stubbs' Files, with sizes plainly marked on each drawer. The shelving from this case to the steps is 36 feet long and 8 feet high to the extreme

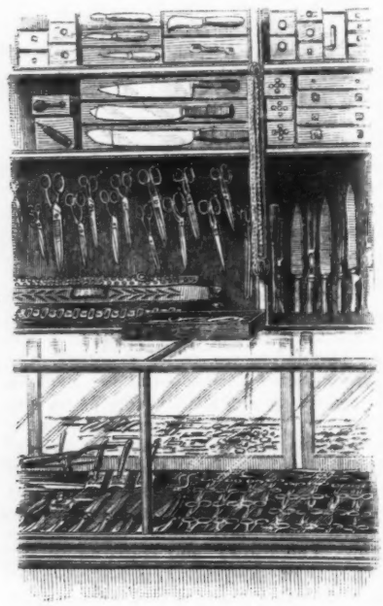


Fig. 641.—Show Case of Cutlery, with Carvers and Scissors in Shelving.

top. The space above the shelving is utilized for keeping stock in unbroken packages. A light movable ladder is used to reach the higher goods. This shelving contains Mechanics' Tools in uniform boxes sampled with the goods each contain. Sample Plyers, for instance, are fastened to the boxes with copper wire. No uniform plan for fastening samples is rigidly carried out, but Screws, Staples, Nails or Wire are used as the occasion demands, with the various classes of goods. Carpenter's Tools follow the Machinist's Tools in the shelving; the last section being devoted to boxes for Chisels, which arrangement calls for special mention. These shelves are 18 inches deep, and project 4 inches beyond the other shelving, are 32 inches wide and 8 inches high, accommodating 15 boxes to each shelf. The extra depth of the shelves allows all the boxes to stand with the ends to the counter, the ends being covered with green paper and neatly lettered with size and kind of contents. Under this 36-foot length of shelving are three tiers of drawers, those in the upper tier being 38 inches long, while the two lower tiers are but half that length. These are used for Brushes, Dusters, &c., and such light goods as are usually kept in drawers. The show cases immediately in front of the shelving display a large variety of Machinist Tools of the finer grades, arranged

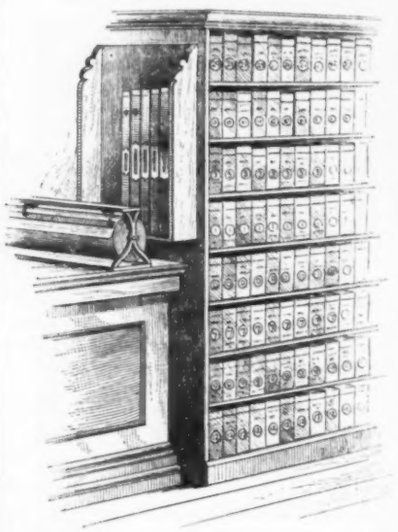


Fig. 642.—Hand Saw Case, with Level Case on the End.

to show them to the best advantage. The space set apart for the office is at the top of the three steps already mentioned, and commands a view of the entire store. The office is divided from the rest of the store by desks, giving the required space in the center. Outside of the desks are tables, on which are circulars intended for mailing or distribution, also a letter-press. An artistic telephone room, with stained glass door and windows, is convenient to the office. Shelves for catalogues, pamphlets and circulars are a part of the office fixtures. A large skylight immediately above this portion of the store distributes the light required. A dumb waiter or small elevator runs from this part of the building to the basement, and not only serves for a sample of elevator fixtures, for which Mr. Bellamy is agent, but is also used for bringing heavy goods up from the basement. A wrapping table in front of the elevator is 5 x 9 feet, with twine and paper for doing up packages. Under this table on one side is a row of drawers; the remainder of the space under the table is devoted to goods on shelving. Following the wall we next come to four shelves, supported by shelf



Fig. 643.—Showing Stairway, High Shelving and Ladder.

brackets, on which are sample Bronze Locks, Door Pulls, Door Bells, &c., which are mounted on wood standards.

Fig. 640 represents an arrangement of slides which are used on the drawers throughout the store, to prevent them from sagging or dropping down in front when drawn out their extreme length. They are of wood, 4 inches high, ⅜ inch wide, and are the same length as the drawer on which they are used. A cast iron guide is fastened to the upright on each side of the drawer, and another guide of the same kind is fastened on each side of the drawer, a lug on the end of the guides engaging in the groove in the top of the slide. The bottom of the slide runs on the same level as the bottom of the drawer. In the front of the store are a variety of show goods, selected and arranged with reference to the season of the year. On the left side of the store, upon entering the door, is a long show case, Fig. 641, for Pocket Cutlery, Carvers, Scissors, Razors, &c. The space of three shelves back of this case is lined with black velvet, upon which is sampled Shears, Carvers and Table Cutlery. The shelves above are used for smaller goods, in sampled green boxes; such goods as Picture Nails, Curtain Nails, Furniture

Nails, &c. Beyond the Cutlery showcase is a square case containing Thermometers, Razor Strops, &c. Between the stairway to the basement and the washroom is an arch 18 feet long and 4 feet deep. The four sections of shelving within the arch, also the showcase in front, are devoted to the stock and display of Dog Collars, Pad and Chest Locks, &c. Beyond the short counter is a case for Hand Saws, Fig. 642, contained in the original boxes. It is 7 feet 6 inches high, 25 inches wide and 31 inches deep, accommodating 28-inch Rip Saws. The ten openings between the shelves are about 8 inches high and will hold eight to ten Saw boxes in each opening. On the end of the Saw case is fastened a box for holding Plumbs and Levels. This is 36 inches high, 24 inches long and 3½ inches deep, the Levels standing on end, Fig. 642. Shelves containing planes are at the foot of the steps, Fig. 643 showing the shelving just beyond this. The high shelving is reached by a traveling ladder of Mr. Bellamy's design, and is referred to as working satisfactorly. A short description of the construction may be of interest. At the top of the shelving is fastened a strip of 1¼ inch pine 4 inches wide, running the entire length of the shelving. To this is fastened Lane's barn door track. Hanging on this track by a pair of 4-inch Scranton hangers is a frame of wood reaching down to the third shelf from the top. The frame is furnished with two stay rollers, one at each side just under the wooden strip, to prevent friction should the frame tilt to either side. At the lower end of the frame are two stationary casters, which run on the edge of the shelf. On the front of the frame are two handles. The ladder is attached to the bottom of the frame, from where it slants to the floor, the bottom being supplied with two Payson's truck casters, No. 188.

The basement is the same size as the store, giving room for Shovels, Nails, Roofing Paper, Transom Lifts, Screen Wire, Screen Doors, and duplicate stock of Hardware. The store throughout is arranged for comfort in doing business and showing goods to the best advantage. Root's handy price cards are largely used. A very convenient list of the square feet of Screen Wire by length and width has been arranged, intended to save figuring the number of square feet each time a price of Wire Screen is sold. It covers the widths from 24 to 36 inches, and lengths from 1 to 4 feet, jumping 3 inches between each length. The shelving, sample cases, desks, display table and furniture are antique oak.

From this description, which, however, leaves some interesting points untouched, it is evident that this store is exceptionally well arranged, with attractive display and convenient disposal of goods. It certainly bears evidence to Mr. Bellamy's taste and skill and the enterprise with which his business is conducted.

It is reported that Edgar A. Brown's Hardware store, at Churchville, N. Y., was recently damaged by fire.

Delays in Delivery.

DELAYS in filling orders sent to factories, is made a subject of discussion in a recent issue of the London *Ironmonger*, showing that the same trouble exists there, as is frequently experienced in this country. On this point it is said :

Whatever the cause or causes may be, it is a well established fact that in almost all businesses it is difficult at all times to obtain prompt deliveries of goods. If orders can be filled from stock they are usually attended to promptly, but if the goods required have to be made delay appears to be inevitable. Whether the delays complained of are longer than they need be is a matter which merits the due consideration of manufacturers. The period differs, no doubt, in individual instances, and depends upon the kinds of goods which are wanted. If a manufacturer receives an order for a few dozen or hundredweight of an article which he can produce more profitably on a large scale, or, perhaps, only produce at a profit when a certain quantity is turned out at a time, the delay can be understood readily.

They suggest as another cause for delay that the manufacturers have dropped into a dilatory way of doing business, for which no adequate excuse can be offered. It would appear from this suggestion that there is not the sharp competition nor the energy displayed among English manufacturers that we see in this country, where the rivalry displayed in securing orders and the continued introduction of new goods in almost every line leaves no room for doubt that manufacturers are alive to the necessity of untiring energy. A correspondent of the same paper attributes the cause of delays largely to the intemperance of workmen who indulge too freely at the end of the week, who are described as coming back on Tuesday and Wednesday glad to earn a day's work wherewith to buy the necessaries of life, their wages all being spent on drink. We hope, however, that this is an exceptional case, and can hardly think that it explains the general complaint that orders are not filled more promptly. It is a fact that delays at the factory cause much annoyance, and often serious losses, and that manufacturers should endeavor to remove the causes. On this point the article referred to says:

If delay is inevitable its cause should be at once made known to the buyer, so that he may decide whether he or his customer can wait, or whether he will endeavor to get his order filled more promptly in some other quarter.

While this provides no remedy for the trouble, such action on the part of the manufacturer would be no more than justice to the merchant ordering the goods, as it would relieve his mind of any uncertainty in the matter.

Price-Lists, Circulars, &c.

HIBBARD, SPENCER BARTLETT & CO., Chicago: Manicure Sets, Manicure Scissors, Polishers, Knives, Files, Tweezers, Paper Knives, &c.

E. C. MEACHAM ARMS COMPANY, St. Louis, Mo.: Gymnasium and Christmas Goods, illustrations of Bowling Alleys, Rowing Machines, Playing Cards, Boxing Gloves, Pocket Cutlery, Baby Carriages, &c.

THE NORTHERN REFRIGERATOR COMPANY, Grand Rapids, Mich.: Ice King Refrigerators, Ice Chests, Sideboard Refrigerators, Cold Storage Rooms, &c. The point is made that every Ice King Refrigerator has six walls to preserve the ice, and all are lined with throughout with zinc. The tilting device for ice chamber illustrated in our last issue is shown in it

J. F. WOLLENSAK, Chicago: Catalogue No. 10, covering Electrical, Mechanical and Air Bell Sets for Front Doors, Chambers, Dining Rooms, Barns, Offices, Factories, Elevators, Steamers, Cars, Yachts, &c. Each set is packed in a neat box ready for shipment and use. A revised price-list accompanies the catalogue. Prices of the Electrical Sets range from $2.30 to $10. Mechanical Sets range from $1.50 to $2.20. Air Bell Sets range from $5 to $7.20 each. A great variety of goods is shown in this catalogue, although it is of small size and comprises but 38 pages. The sets listed in it have been carefully selected and designed to meet the popular demands on each of its kind. Preference is given to the Leclanche Disque Batteries, but other batteries are packed with the sets if desired. Bells and pushes are varied to suit special requirements.

C. ROGERS & BROS., Meriden, Conn.: Spoons, Forks, Knives, &c. These goods are shown in a large variety of styles and patterns. A number of pages in the back of their catalogue are devoted to list prices.

THE SHUNK PLOW COMPANY, Bucyrus, Ohio: Shunk's New Model Plow, Steel Breaking Plows of all kinds, Double and Single Shovel Plows, and Plow Fixtures. They issue a large card for hanging with metallic ends, illustrating eight different styles of their Plows, these being interspersed with colored views of Niagara Falls and vicinity.

SMALLEY MFG. COMPANY, Manitowoc, Wis.: Feed Cutters, Horse Powers, Mountings for Powers, Sweep Powers and Jacks, Feed Grinders, Self-Feeding Drag Saw, Cut Off Saws, Farm Engines, &c.

THE PLATT CARRIAGE COMPANY, Mansfield, Ohio: Fine Carriages, Surreys, Jaggers, Road Wagons and Phaetons. They direct attention to the material, workmanship, beauty and style of their vehicles.

HAMILTON INDUSTRIAL WORKS COMPANY, Hamilton, Canada: Wringers, Washers, Mangles, Churns, Carpet Sweepers, Meat Choppers and Kitchen Sundries. The above firm are agents for American goods in the above lines, as well as manufacturers.

SPRINGFIELD ARCHITECTURAL IRON WORKS, Springfield, Ohio: Iron Fences, Gates, Lawn Vases, Settees, Stairs, Jail Cells, Hitching Posts, Lawn Mowers, &c.

ROBERT DONAHUE, Burlington, Iowa: Circular relating to Gautier Steel Toe Calks, Cutter Stuff, Bob Sled Stuff, Cast and Wrought Sled Runners, Cutters, Children's Sleds, Burden Horse Shoes, &c. An attractive calendar for 1891 is also issued.

THE EMPIRE MFG. COMPANY, Forestville, N. Y.: Step Ladders, Clothes Bars, Acme Wash Bench, Skirt Boards, Molding Boards, Rock Maple Steak Boards, Horse Pokes, Extension Ladders, &c.

COMBINATION FOLDING BATH TUB COMPANY, Marshall, Mich.: Combination Folding Bath, Family Chair Bath. The Folding Bath Tub contains a water heater, with a stated capacity of heating 20 gallons of water in 25 minutes, and can be operated by oil, gasoline, gas or natural gas. It requires but little room when folded. The great advantage claimed for it is that the expense of putting in heating boilers with ranges or furnaces with cold and hot water pipes is entirely done away.

HENRY SCHADE, 56 and 58 Ainslie street, Brooklyn, N. Y.: Electro Silver Plated Ware, Communion Sets, Ice Pitchers, Tea Sets, Dinner Casters, Cake Baskets, Berry Dishes, Cups, Butter Dishes, Trays, Flat Ware in cases, Spoons, Forks, Bells, &c.

THE H. M. MYERS COMPANY, Beaver Falls, Pa.: Shovels, Spades, Scoops and Drain Tools. In their catalogue for 1891 they state to the trade that their goods are the result of a quarter of a century of careful and practical application to the necessities of the consumer, and call particular attention to the desirability of their Patent Solid Steel Socket Strap Shovels.

PARLIN & ORENDORFF COMPANY, Canton, Ill.: Catalogue E, illustrating their line of Plows, Cultivators, Harrows, &c. They are among the oldest manufacturers of agricultural implements in the West, hav-

ing been established in 1842. Their catalogue presents a very great variety of Plows, Listers, Corn Drills, Gang Plows, Cultivators, Potato Diggers, Rotary Disk Harrows, Harrow Seeders, Stalk Cutters, Cotton and Corn Planters, Tooth Harrows, &c., meeting almost every conceivable demand for special implements in this line. Cuts of parts of the machines are given in complete detail, together with full lists of prices and a telegraph code, for the convenience of those ordering machines or repairs. The catalogue comprises 80 pages, and is very handsomely printed, the illustrations being particularly fine.

George S. Douglass.

GEORGE S. DOUGLASS, whose sudden death on the 16th inst., at the age of 33 years, was announced in these columns a week ago, was born in Brooklyn May 25, 1857. His first business experience was in the employ of D. G. Gautier & Co., Jersey City, N. J., afterward Gautier Steel Department of Cambria Iron Company, Johnstown, Pa., of which his father was superintendent. In 1880, on the organization of the Iowa Barb Wire Company, he was given the responsible position of treasurer, an office which he filled up to the time of his death, and in which, during the development of the company's business, he showed marked ability which led to his filling a leading position in the management of their affairs. He also became prominent among manufacturers in this line, and in Barb Wire councils he occupied an influential position, so much so that he was regarded as a leader among men many of whom were his seniors in years and experience. He was widely known among the trade in the East and West, and made many friends by his genial ways and cheerful disposition. He was unquestionably an able business man, and with the careful study which he gave to the market and his well balanced judgment, his views were regarded as of especial weight. Much regret is expressed and sincere sorrow felt, that one so highly esteemed, with so promising a future, should be taken so early from the scene of his activity and usefulness.



GEORGE S. DOUGLASS.

Duty on Guns.

THE GENERAL APPRAISERS have sustained the Collector of the Port in his decision in the matter of duties to be levied on importations of gun stocks and gun barrels. The case was that of Schoverling, Daly & Gales, who protested against the duty assessed on 12 finished gun stocks with locks and mountings, brought in by the steamer Amsterdam. The Assistant Appraiser held that the stocks were ready to attach to gun barrels which arrived in another shipment, and that the two attached to one another made breech loading guns complete. As breech loading guns, valued at not over $6 each, the Collector assessed the duty at 35 per cent. ad valorem and $1.50 specific duty. The importers protested that gun stocks were not complete firearms, and should be classed as manufactures in part of steel, dutiable at 45 per cent. In deciding the case the appraisers take the view that the stocks and the barrels were imported to be put together in this country, and that therefore the importations should pay duty as breech loading shotguns. The case, which is made by the importers of this city a test case, will, we are advised, be carried into the courts.

Stamping Imported Goods.

SINCE OUR RECENT ARTICLE on this subject there has been further correspondence between importers and the Treasury Department in regard to the interpretation of the law requiring goods which are stamped to be so stamped as to indicate the country of their origin. The Treasury Department is evidently disposed to consider the law as requiring that the mark shall distinctly name the country of origin, and the letters given below show the strictness with which in their judgment this should be required. Under date December 4 the well known Hardware house of Alfred Field & Co., 93 Chambers street, New York, addressed the Secretary of the Treasury, inquiring if goods branded with the name of the different countries in the German Empire will meet the requirements of the section in question—that is to say, in cases where goods are made in Prussia, if they are branded "Prussia;" when made in Bavaria, if branded "Bavaria," &c. Under date December 9 the following reply was made by O. Z. Spaulding, Assistant Secretary:

In reply to your letter of the 4th inst., I have to state that, in the opinion of the Department, it will be sufficient under the provisions of section 6 of the act of October 1, 1890, if goods produced in and imported from the German Empire are "marked, stampod, branded, or labeled" with the name "Germany."

While a name of a State of the German Empire on goods imported on and after March 1, 1891, might be construed as a compliance with the above mentioned provision, it is deemed that such provision would be more closely complied with if the name of the mother country of origin were made to appear. No objection, however, exists to marking goods with the name of the State, if the name of the country also appears, as, for example, "Prussia," Germany.

In reply to the above letter Alfred Field & Co., December 10, wrote the Department as follows:

We are duly in receipt of your favor of December 9 in reference to stamping and labeling goods in accordance with the new branding law, as per section 6 of the new Tariff law.

You admit that stamping the name of the different kingdoms of the German empire might fairly be construed to meet the requirements of the law, but that it is deemed the section would be more closely complied with if the name of the mother country of origin were made to appear.

The difficulty is that while it is desirable to stamp the names of the several kingdoms in which the goods are made, it is objectionable to stamp both the names of the kingdoms and the empire, for the reason that in most cases there is not room for both names. It would seem that if it should be ruled that stamping the kingdoms of the German empire is not sufficient to meet the requirements of the law, then, in that case, it would be necessary in cases where goods are made in England, Scotland or Wales to stamp such goods "Great Britain," and that "England," &c., would not be sufficient. We should, therefore, much like to have a clear decision on this matter, as it is of considerable importance to us, and we have already some goods in process of manufacture, which are being stamped "England" and "Prussia," as fairly covering the requirements of the law.

To this letter the Assistant Secretary made reply December 17, to the following effect:

In reply to your letter of the 10th inst, further in regard to the requirements of section 6 of the act of October 1, 1890, as to the marking, stamping, &c., of imported goods on and after the 1st of March, 1891, I have to state that the above requirements will be fully met if the goods you mention shall bear the name of the "country of their origin" stamped or marked in legible English words, such as "Great Britain," "France," "Germany," &c., as the case may be, with or without the addition of the name of a state or division of such country of origin, as the shipper may desire.

I may add that the language of the section mentioned is so plain as hardly to require any interpretation by this Department.

It is obvious that this letter leaves the matter in unsatisfactory shape, and with a somewhat embarrassing uncertainty as to the interpretation of the Department inasmuch as it fails to give an explicit reply to the inquiry of Alfred Field & Co. It is obviously intended by the Department to convey the impression that goods, for example, marked "England" simply are not to be regarded as meeting the requirements of the law, the opinion being that they should be marked "Great Britain." This interpretation will, however, hardly commend itself as reasonable, and it is very questionable whether the attempt will be made to apply it.

It is Reported—

THAT J. M. LeBeau & Co., Escanaba, Mich., have opened a General Builders' and Mechanics' Supply office in that city.

That the Hardware store of Smith & Carnahan, Washington, Ind., was damaged by fire December 13. It was insured for $2600.

That W. R. Dean's Hardware establishment, Minden, Neb., was recently burned out.

That H. M. Lane has bought George Hubbard's interest in the Hardware firm of Hubbard & Black, Cortland, N. Y.

That Howard Ames, formerly engaged in the Hardware business at Mt. Morris, N. Y., was married in St. Louis on the 11th inst. to Miss Nellie Boynton.

That F. C. Chapman has opened a Hardware store at South Dennis, Mass.

That C. F. Behrends has embarked in the Hardware business at Sioux City, Iowa.

That E. P. & L. L. Blarm have opened a Hardware store at Monroe City, Ind.

That Charles Tanzer, Hardware and Tin, Croghan, N. Y., was burned out recently. Loss, $8,000.

That E. F. Birdsall & Co., Evart, Mich., Hardware dealers, have moved into a new store.

That H. P. Burt, Stoves, Tin, &c., Clayville, N. Y., has sold out to Green Bros.

That James M. Edwards, Dansville, N. Y., is closing out his Hardware business and will move to Minneapolis.

That the establishment of J. V. Carlisle & Co., dealers in Hardware, Paints, Oils, Glass, &c., Wilmington, Del., was slightly damaged by fire on the 16th inst.

That the Hardware firm of Colton & Chapman, Toledo, Ohio, was dissolved on the 17th inst. The business will be continued by the Chapman Hardware Company, Frank H. Chapman acting as manager. The new firm will handle a full line of building and general Hardware, especial attention being given to Stoves, Bicycles, House Furnishing Goods and Cabinet Hardware.

That the firm of Jack Bros., Braidwood, Ill., has been dissolved, Thomas B. Jack retiring. William Jack, Jr., George Jack and John Jack will continue the business.

That Hewlett Scudder, of the firm of Stoyle & Scudder, dealers in Stoves, Tin, &c., Huntington, N. Y., has retired from the business, which will be continued by W. H. Stoyle.

That the Hardware store of Samuel Peloubet, Bloomfield, N. J., was entered by burglars on the 17th inst., and $60 worth of Cutlery and other goods stolen. No clue to the thieves has yet been obtained.

That Jeremiah Black will open a new Hardware store in Boone, Iowa.

That the Parkersburg Hardware and Mfg. Company have been incorporated at Parkersburg, West Va., by C. B. Smith and others, to manufacture and deal in Hardware.

That the Hardware store of L. J. Soisson, Connellsville, Pa., was recently damaged by fire to the extent of $50.

That C. F. West will open a new Hardware store at Chattanooga, Tenn.

That Schrader & Anderson, Sandborn, Ind., Hardware merchants, have sold out their business to H. L. Renner.

That Miles & Maderis, dealers in Hardware, Lyons, Kan., have disposed of their business to F. H. Wonderly.

That P M. Smith, Hardware, Stoves, &c., Kirksville. Mo., was recently burned out.

That George E. Hill will open a hardware store in Sioux Falls, South Dakota.

Exports.

PER BARK FRANCESCA T., NOVEMBER 29, 1890, FOR MELBOURNE, AUSTRALIA.

By Meriden Britannia Company.—12 packages Plated Ware.
By Russell & Erwin Mfg. Company.—29 packages Hardware.
By Dunbar, Hobart & Co.—80 cases Nails.
By Edward Miller & Co.—1 box and 91 packages Lamp Goods.
By R. W. Forbes & Son.—3 cases Hardware, 2 gross Hardware, 1 case Metal Goods.
By A. S. Lascelles & Co.—34 dozen Axes, 1 case Hardware.
By W. H. Crossman & Bro.—6 dozen Bush Hooks, 4 dozen Hay Forks, 4 dozen Lanterns, 6 dozen Pruning Shears, ½ dozen Meat Choppers, 2 cases Hardware, 350 pounds Tacks, 1 case Agricultural Implements, 18 Lawn Mowers, 8 cases Hardware, 10 dozen Forks.
By V. Basanta.—1 dozen Choppers, 2 dozen Axes, 2 dozen Knives, 15½ dozen Hardware, 56 pounds Washita Stone, 4 dozen Wringers, 2 dozen Springs, 2 dozen Saw Sets, 3 dozen Forks, 1½ dozen Spoke Shaves, 15 dozen Axes, 10 dozen Saws.
By H. W. Peabody & Co.—18 packages Hardware, 5 barrels Lamp Ware, 7 packages Stamped Ware, 3¼ dozen Miter Boxes, 11 dozen Primers, 10 packages Rakes, &c., 14 cases Lawn Mowers, 8 packages, Hardware, 33 gross bolts, 5 cases Agate Ware, 8 cases Wringers.
By McLean Bros. & Rigg.—99 Plows, 11 dozen Locks, 1½ dozen Wrenches, 1 dozen Revolvers, 3½ dozen Wrenches, 20 dozen Braces, 5 dozen Bush Hooks, ½ dozen Hoes, 2 dozen Vises, 2000 Metallic Cartridges, 6 dozen Augers, 3 Carbines, 1 dozen Seed Planters, 560 pounds Whetstones.
By Arkell & Douglas.—2240 pounds Axes, 460 pounds Axles, 11,200 pounds Stoves, 5 dozen Axes, 2 dozen Plated Ware, 1 dozen Hay Knives, 160 pounds Clips, 13½ dozen Oil Stoves, 6 dozen Thermometers, 4 dozen Traps, 3 dozen Hooks, 2 dozen Wringers, 3 dozen Bits, 6 Stoves, 4 dozen Traps, 12 dozen Lamp Ware, 1½ dozen Lawn Mowers, 2 dozen Axes, 3 dozen Oil Cans, 4 dozen Saws, ½ dozen Hoes, 4 dozen Drills, 2 dozen Pumps, 4 dozen Wringers, 3 dozen Dust Pans, 8 dozen Blocks, 3 dozen Hoes, ½ dozen Rifles, 44,862 pounds Barb Wire, 20 dozen Axes, 2 dozen Locks, ½ dozen Punches, 2670 pounds Bolts, 2 dozen Axes, 3 dozen Wrenches.

PER BARK TROS, DECEMBER 1, 1890, FOR ADELAIDE, AUSTRALIA.

By J. A. Gifford.—6 packages Hardware.
By Adriance, Platt & Co.—12 Mowers.
By Strong & Trowbridge.—22,400 pounds Barb Wire.
By R. W. Forbes & Son.—8 packages Carriage Hardware.
By A. Field & Co.—9 Refrigerators, 2 dozen Wringers, 80 dozen Tinware.
By W. H. Crossman & Bro.—4 packages Lamps, ½ dozen Guns, 10,000 Cartridge Shells, 20,000 Primers, 20,000 Cartridges, 16 sets Axles, 12 dozen Lanterns, 52 cases Carpenters' Tools, 12 cases and 8 packages Hardware, 1 dozen Axes.
By H. W. Peabody & Co.—6 cases Hardware, 580 reels Barb Wire, 18 cases Edge Tools, 6 packages Stoves, &c., 35 crates Stoves, 3 cases Hardware, 1 case Money Drawers, 1 cask Lamp Ware, 3 cases Meat Choppers, 1 case Tacks, 48 Wringers, 2 packages Traps, 3 cases Hardware, 1 gross Egg Beaters, 6 cases Edge Tools, 2½ gross Traps, 1 package Cork Pullers, 1 package Barometers, 3 packages Hardware, 1 package Whetstones, 7840 pounds Barb Wire, 1 case Hardware.
By McLean Bros. & Rigg.—4 dozen Saws, 1 dozen Wringers, 2 dozen Hammers, 3 dozen Bush Hooks, 6 dozen Door Springs, ¾ dozen Planes, 3 dozen pairs Butts, 6 dozen Hay Forks, 36 dozen Mouse Traps, 7 dozen Drills, 5 dozen Whetstones, 4 dozen Lemon Squeezers, 5 dozen Locks, 4 dozen Mattocks, 12 dozen Door Springs, 9 cases Agate Ware, 6 dozen Fly Traps, 30 Oil Stoves, 9 dozen Wrenches, 15 dozen Axes, 3 dozen Bench Screws, 12 dozen Mouse Traps, 4 dozen Drills, 1 Meat Cutter, 10 gross Harness Menders, 72 dozen Cages, 1 case Plated Ware, 2 cases Saws, 4 packages Lamp Goods.

PER BARK XENIA, DECEMBER 10, 1890, FOR SYDNEY, NEW SOUTH WALES.

By B. F. Avery & Sons.—40 Plows.
By Winchester Repeating Arms Company.—12 Guns.
By W. K. Freeman.—4 Scales.
By Meriden Britannia Company.—13 barrels Plated Ware.
By Edward Miller & Co.—124 packages Lamp Goods.
By Collins & Co.—429 dozen Edge Tools.
By V. Basanta.—5 dozen Hammers, 117 Planes, 13 dozen Hardware, 8½ dozen Chisels, 4 dozen Braces.
By Tower & Lyon.—3 cases Hardware, 8 barrels Tackle Blocks, 6 cases and 2 crates Glue, 4 cases Hardware.
By H. W. Peabody & Co.—18 dozen Brushes.
By R. W. Forbes & Son.—9 dozen Hardware, 2 boxes Carriage Hardware, 3 packages Hardware.
By V. Basanta.—18 Wringers, 86 dozen Saws, 2 dozen Sad Irons, 3 dozen Churns, 6 dozen Tills, 22 dozen Locks.
By Coombs, Crosby & Eddy.—1 crate Stone, 8 dozen Wringers, 31½ dozen Tools, 15 gross Hardware, 3 gross Egg Beaters, 2 dozen Carpet Sweepers, 4 dozen Carpenters' Tools.
By W. H. Crossman & Bro.—3¾ gross Shovels, 4 casks Lamp Goods, 6 dozen Sifters, 35 dozen Axes, 17 dozen Cow Bells, 6 dozen Grindstone Fixtures, 20,000 Cartridge Shells, 30,000 Primers, 3 packages Lamp Goods, 18 cases Hardware, 4½ dozen Churns.
By McLean Bros. & Rigg.—131 sets Axles, 18 dozen Locks, 42 dozen Door Springs, 9 dozen Drills, 147 dozen Pulleys, 38 dozen Saws, 2 Drills, 2 gross Rat Traps, 1 Drill, 1 dozen Chucks, 12 dozen Axes, 55 packages Lamp Goods, 1 dozen Wringers, 50 Churns, 1 gross Mop Handles, 6 dozen Hames, 18 dozen Axes, 40 pounds Whetstones, 9 Plows.
By Ilsley, Doubleday & Co.—5 gross Tools, 1 box Hardware, 18 dozen Horse Brushes.
By Arkell & Douglas.—6 cases Axes, 375 pounds Wooden Hames, ½ dozen Tire Shrinkers, 224 pounds Tacks, ½ dozen Wringers, 3 dozen Axes, 17 dozen Axes, 11,219 pounds Barb Wire, 100 dozen Lampware, 103 dozen Tinware, 20 dozen Picks, 1½ dozen Lawn Mowers, 1629 pounds Bolts, 20 dozen Axes, 490 dozen Lampware, 6 dozen Hinges, 120 pounds Nails, 4 dozen Wrenches, 19 dozen Saws, 1 dozen Cork Pullers, 12 Stoves, 32 Harrows, ½ dozen Scales, 6 dozen Saws, 20 dozen Bush Hooks, 20 dozen Hammers, 6 dozen Forks, 9 dozen Saws, 6 dozen Hatchets, 14 dozen Lamps, 15 dozen Locks, 7 dozen Axes, 1 dozen Wringers, 37 dozen Axes, 6 dozen Traps, 29 dozen Axes, 8 dozen Saws, 18 dozen Axes, 5 dozen Axes, 2106 pounds Bolts, 14 Stoves, 13 dozen Wire Goods, 2 dozen Broilers, 18 dozen Picks, 55 dozen Axes, 3 Shellers, 18 dozen Lampware, 329 pounds Iron Nuts, 416 pounds Bolts, 62 pounds Hames, 16 pounds Springs, 2 dozen Jacks, 127 pounds Nails.

PER BARK MARY HASBROUCK, DECEMBER 11, 1890, FOR BRISBANE, AUSTRALIA.

By H. B. Moore.—9 packages Plows and parts.
By Edward Miller & Co.—15 barrels Lamp Goods.
By V. Basanta.—3 dozen Churns, 6 Wringers.
By R. W. Forbes & Son.—2 dozen Axes, 10 pounds Oil Stoves, 11 boxes Plows, 3 packages Hardware, 14 packages Carriage Hardware, 1 Saw, 1 case Hardware.
By H. W. Peabody & Co.—6 cases Lead Pencils, 28 dozen Forks, 21 packages Hardware, 16 Oil Stoves, 4 packages Sifters, 24 Stepladders, 6 packages Hardware, 2 cases Lampware.

The Irwin Solid Center Stem Bits.

The Irwin Auger Bit Company, Wilmington, Ohio, are manufacturing auger bits, as illustrated herewith. These have been a line of goods which are probably new to many hardware dealers. They are made in auger, car and machine bits; also in boring machine and carpenters' augers. The cuts will convey an idea of the construction of these goods. Attention is directed to the following points and claims made by the manufacturers: That having only one cutter they only require half the power in boring, and they cut equally fast; that it is impossible for them to choke, as they have only one crimp, and therefore have twice the clearance of any other bit; that no pressure is required in boring; that they will bore equally well in the end or side of any kind of wood, having a solid center, rendering them strong. It is stated these points will be appreciated by millwrights, car and bridge builders, mechanics and manufacturers generally.



Fig. 1.—The Irwin Solid Center Stem Auger Bit.

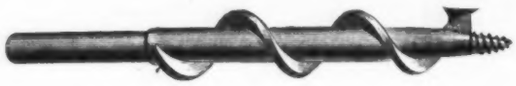


Fig. 2.—The Irwin Boring Machine Augers.

The Invincible Clothes Wringer.

The Lovell Mfg Company, Erie, Pa., are putting upon the market the Invincible Wringer, as illustrated herewith. It is claimed that this wringer has solid white rubber rolls, vulcanized on the shaft, and an oil tempered steel spring so arranged as to give the wringer great capacity without injury to the spring. The rolls are described as being driven by a small gear on the handle, that turns on a stud between the two larger gears, as shown in the cut; the upper large gear being on the shaft of the upper roll, while the lower large gear is on a counter shaft that passes through the frame of the wringer below the under roll. The gears on the handle drive the under roll by gears on the counter shaft and under roll, at the other or opposite end of the wringer, these gears not being shown in the cut. It is stated that by this arrangement of gearing the tubs, and the wringer turned either way; or may be be used as any wringer upon round or square portable tubs. The point is made that the boxes for the roll bearings are made of hard wood, boiled in oil, to remove the necessity for oiling those bearings, and to prevent any surplus grease which would be apt to soil the clothes in wringing.



The Invincible Clothes Wringer.

Nicholson's Duplex Chimney Top.

Graham & Murphy, Fourth avenue and 126th street, New York City, are offering the trade a patent duplex chimney top, some idea of the general construction of which may be obtained from an inspection of the accompanying illustrations. The manufacturers claim that the use of this device does away with long stretches of galvanized pipes on the side of high buildings, and that the chimney top will work with entire satisfaction upon any chimney, whether high or low and whatever be the side of the building as regards the points of the compass. Fig. 1 shows a general view of the Nicholson Patent Duplex Chimney Top, while Fig. 2 shows a sectional view through the top, the arrows indicating the course of the air currents with the wind blowing from different directions. The manufacturers claim that the construction of this device is such that when there is no wind to speak of the up drafts are improved, while the same may be said of horizontal drafts when there is a wind. The smoke is said to be drawn out of the chimney with increased force and choking up of the flue with soot is prevented.



Nicholson's Duplex Chimney Top.—Fig. 1.—General View of the Device.

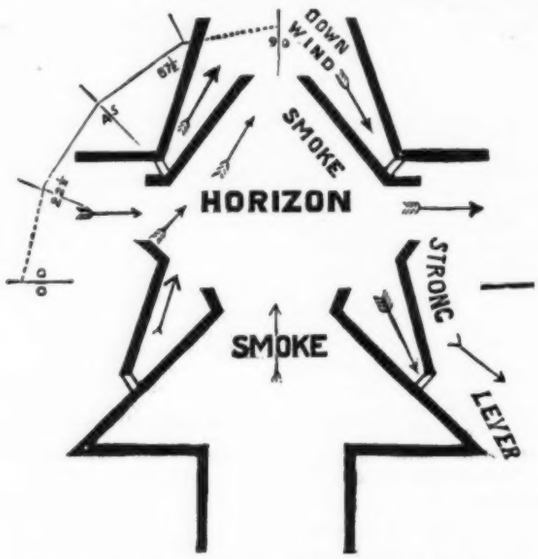


Fig. 2.—Vertical Section through the Chimney Top.

Krick's Handy Thill Anti-Rattler.

Theo. J. Ely Mfg. Company, Conneautville, Pa., are introducing an anti-rattler, as illustrated herewith. This is spring steel formed in the shape shown in the cut. Through the arched piece in the center is a bolt with a thumb screw on the end. When the thumb screw is turned up the two ends separate to the required distance. The anti-rattler is to be inserted at the under side of the coupling without removing nut or bolt. It is stated that any desired degree of pressure required to avoid rattling may be secured by screwing up the thumb nut, and that the device may be placed in position in two minutes by the operator without assistance.



Krick's Handy Thill Anti-Rattler.

The North Star Refrigerator.

For the purpose of explaining the construction of the refrigerators made by the G. M. Shirk Mfg. Company, 112 and 114 Lake street, Chicago, an illustration is herewith presented of a sideboard refrigerator, which they have just brought out. Refrigerators of this pattern have a tank to catch the drippings from the ice. The walls are not filled, but are constructed with hollow spaces which have no openings and thus contain dead air, which, it is claimed, insures perfect protection against outside heat, as air is the best known non-conductor of heat. The ice chamber is lined with galvanized steel, instead of zinc, and, it is claimed, is thus not so liable to be performed by the ice pick. The bottom

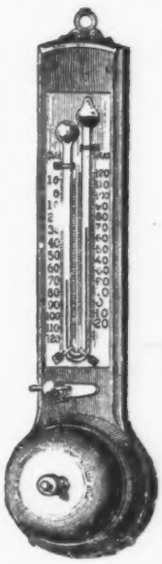


North Star Refrigerator.

of the provision chamber has a patent drain trough, to carry into the waste pan all spilled liquids or water used in washing it out. A ventilator is placed in the top of the lid. The trimmings used on these refrigerators are of the best character. The hinges are of solid bronze, of ornamental pattern, made with a curve to exactly fit the swell in the door. The lock is of a new pattern. It is an air-tight wedge lever lock, with a drop handle. The latch is raised by slightly turning the handle, which is mounted on a revolving plate.

Electric Alarm Thermometer.

The Nassau Electrical Company, 19 Park place, New York, are putting on the market an alarm thermometer, as illustrated herewith, which is operated by one of their electric capsule batteries, a description of which was given in our issue of the 18th inst. These thermometers are adapted for use in breweries, malt houses, Turkish baths, cold storage houses, factories, &c., to control any given range of temperature. For offices, living and sleeping rooms, conservatories, nurseries sick rooms, hospitals, schools, railway cars, sleepers, &c., the thermometer is usually given a range of 4° above and below 70°, as 70° is the temperature most conducive to health and comfort in such places. When the mercury reaches either extreme of this range the alarm bell rings, and continues to ring until the

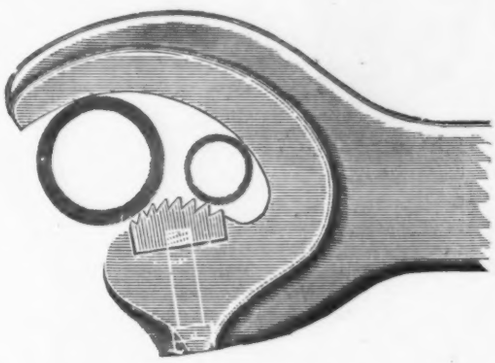


Nassau Electric Alarm Thermometer.

temperature changes or the switch is turned. Thus it provides a safeguard against the dangers to health which arise from variations of temperature. The alarm can, when desired, be arranged to sound at any distance from the thermometer itself, and in this way be used as a guard against the risk of fire. When no alarm is needed, as in summer, the bell is silenced altogether by turning the switch. The electric capsule which operates the alarm bell is described as perfectly dry, needing no attention, and will last, it is stated, from one to three years, according to the frequency with which the alarm is sounded; it can be instantaneously replaced by a new capsule at a nominal cost.

Paragon Pipe Wrench.

The Paragon Novelty Company, New Haven, Conn., are introducing a pipe wrench, as illustrated herewith. It is described as having the jaws made of the best



Paragon Pipe Wrench.

of steel, hardened and tempered, and made interchangeable. They can be taken out, and when dull sharpened and replaced. New jaws may be obtained when desired. It is stated that this wrench will grip any round or irregular object, as gas pipe, square or hexagon nuts, and needs no adjustment from pipe to coupling. These wrenches are made in five sizes, ranging from ⅛-inch pipe to 2-inch coupling.

The Perfect Cork Extractor.

Alford & Berkele Company, 77 Chambers street, New York, are introducing a cork extractor, as illustrated herewith,



Fig. 1.—The Perfect Cork Extractor.

and manufactured by E. Donally, Sixteenth street and Third avenue, New York. The body of the extractor is made of a flat strip of spring metal, the upper end of which is looped over a handle,

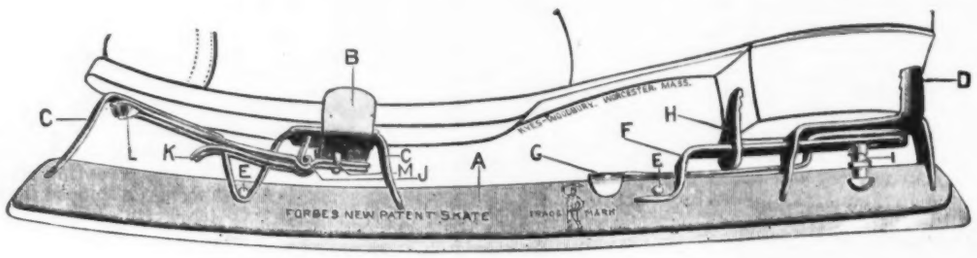


Fig. 2.—The Perfect Cork Extractor, as Used.

while at a short distance from its lower end are outward and upward extending claws; another set of similar claws being arranged at a point higher up on the strip, Fig. 1. The extractor is designed to pull corks from the inside of bottles, jugs, demijohns, &c., as illustrated in Fig. 2. It is stated the operator does not have to see the cork, nor hunt for it as the extractor does both without assistance. The handle has one tapering end, to be used in forcing the cork down into the bottle, in case of full bottles or where the cork has lodged in the neck, after which the cork is withdrawn as described.

Forbes' New Patent Skate.

Merwin, Hulbert & Co., 26 West Twenty-third street, New York, are introducing Forbes' skate, as illustrated herewith. It will be seen from the following description that it embodies features not found in other skates. The runner is unusually broad on the bottom, being ⅝-inch wide in front and tapering to nearly a point at the back, making a gradual curve the length of the runner. The advantage

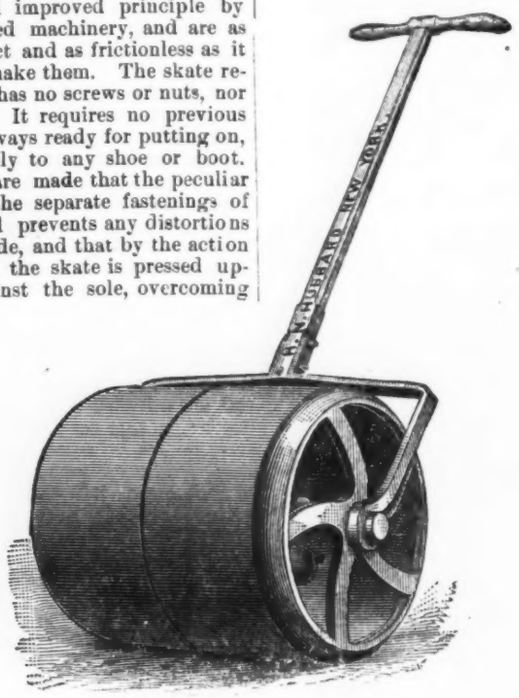


Forbes' New Patent Skate.

of this form is referred to as presenting a smaller surface to the ice when making curves, and consequently less friction. The bottom of the runner is curved vertically from about the center part, taking advantage of the natural spring of the instep to accommodate any part of this curve as the particular poise may require. This form also gives firmness when standing on the skate, without the unpleasant feeling of tipping backward. It is stated that the bottom of the runner is ground upon an entirely new and improved principle by specially designed machinery, and are as absolutely perfect and as frictionless as it is possible to make them. The skate requires no key, has no screws or nuts, nor any loose parts. It requires no previous fitting, but is always ready for putting on, and fastens firmly to any shoe or boot. The statements are made that the peculiar arrangement of the separate fastenings of the sole and heel prevents any distortions of the skate blade, and that by the action of putting it on the skate is pressed upward firmly against the sole, overcoming the sensation of any looseness. The clamps in front, upon being fastened, bend over, drawing the sole down on to the skate, and obviating the necessity of placing the skate on the ice and pressing the sole tightly to the skate before fastening it. The clamps in front are fastened by a ratchet clutch and those at the heel by a friction clutch. This skate is referred to as being the outcome of 30 years' experience of Mr. Forbes, the patentee of the Acme, receiving at the hands of the inventor a more scientific treatment than has ever before been given to the subject. The skate is neat in appearance, finely finished, and the trade are assured by the manufacturers that only the very finest quality of steel is used, the object being to produce the very best article of its kind that can be made.

Hubbard's Improved Garden Roller.

The Boonton Agricultural Works, Boonton, N. J., and 96 Chambers street, New York, are manufacturing a garden roller, as illustrated herewith. The improvement consists in the rounded edges of the section to prevent dirt being thrown up in turning the roller round at the ends or corners of the plat to be rolled. It is stated that in operating the old style it is necessary to keep the roller rolling in a straight line, or the square outer edges dig into the soil and throw up dirt in sufficient quantity to seriously interfere with the work already accomplished. The wood handles are made from seasoned oak, and referred to as being preferable to iron in every respect. Upon the shafts are hung weights for the purpose of keeping the handles erect and to give greater weight to the rollers. These rollers are manufactured in both two and three sections, from 20 to 28 inches in diameter, all having 12-inch face, making six sizes in all.



Hubbard's Improved Garden Roller.

Wonderful growth has attended the general prosperity of Pittsburgh industries this year. The *Dispatch* says: "Though many of the mills are now changing back to coal or adopting other substitutes for natural gas fuel, nearly all of them are enlarging their plants in the expectation of doing more business next year than they have done this year. These signs are particularly welcome and encouraging in view of the late financial flurry and disturbance of business in other sections."

The Acme and Beebe Hoes.

Withington and Cooley Mfg. Company, Jackson, Mich., are introducing to the trade, two hoes, as illustrated in Figs. 1 and 2. The Acme Hoe is referred to as a weeding hoe for gardeners' use, while the Beebe hoe is for general field use. Withington & Cooley Mfg. Company are conspicuous for the number of special styles of hoes which they have introduced and manufacture. In this connection they state that they do not take up a tool unless both judgment and trial approve it, and that their goods for this reason stay in the market for the general or special use for which they are made.



Fig. 1.—The Acme Cultivator Hoe.



Fig. 2.—The Beebe Hoe.

Both of the above hoes are the invention of Calvin T. Beebe, after whom they are named.

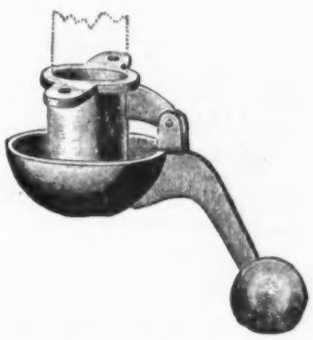
The Eureka Company, Rock Falls, Ill., referring to their compression coil spring, which they use on road carts, remark that it cannot be overloaded without recourse. When entirely compressed it is as much at rest as if no load was upon it. There are coil springs used upon other vehicles; most of them expand or grow longer with the applying of a load, while theirs are so fixed with a center rod and outside yoke as to compress the spring, thereby bring-

ing out the greatest carrying capacity with the least risk of breaking. Another prominent feature in their line is their quick turn gear, which they use on four wheel vehicles, mostly of the delivery style. In connection with this department of their work they mention that the use of this gear enables the builder to hang the body of the wagon very low, to build his body wide and to use high wheels both front and back, and notwithstanding this he can turn very short and his front wheels will not strike the body in turning. They make a heavy delivery wagon with an 8-foot body that will turn readily in 15-foot diameter, while it takes an ordinary wagon 26 to 30 feet.

Attention is also directed to their all metal runner for converting wheeled vehicles into sleighs, which, it is stated, can be adapted to almost any style spring vehicle without the aid of a mechanic, being fastened to the axle by clips and ties, doing entirely away with hubs. It is referred to as fitting any make of vehicle, and adjustable to wide, narrow, or side track.

The North Star Refrigerator Trap.

Illustrations are herewith presented of a very ingenious trap patented and manufactured by the G. M. Shirk Mfg. Company, 112 and 114 Lake street, Chicago, and used by them on their North Star Refrigerators. Fig. 1 shows the trap in position to catch the waste water and thus effectually seal this opening into the refrigerator. Fig. 2 shows the cup turned down to be cleaned or emptied. The weighted arm causes the cup to automatically take its place as soon as it is released and holds it firmly in position. The device is screwed to the bottom of the refrigerator and cannot become loose or let the cold air escape. It is made of malleable iron, japanned, and is a most excellent device for the purpose.



North Star Refrigerator Trap.—Fig. 1.—Trap in Position to Catch Waste Water.

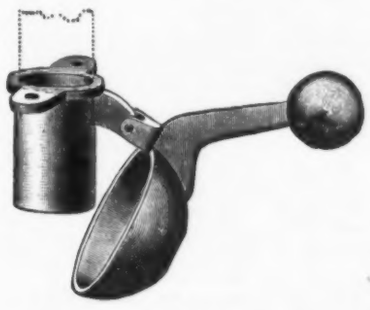


Fig. 2.—Position for Emptying Trap.

Carnegie, Phipps & Co., Limited, of Pittsburgh have established an emergency hospital at their Homestead Steel Works, at Homestead, Pa.

PERSONALS.

Edward P. Botsford has withdrawn from the Shenandoah Furnace Company, Shenandoah, Va., and Howard Winston, bookkeeper for the company, has been elected secretary and treasurer to fill the place vacated by Mr. Botsford.

H. Adkinson, who has been secretary and treasurer of the Anniston Rolling Mills, Anniston, Ala., has resigned, and George A. Hoerle has succeeded him.

Dr. David T. Day of Washington, D.C., who has charge of the collection of statistics regarding the mining interests of the country for the census of 1890, and who has for several years collected such statistics for the United States Geological Survey, is being suggested by his friends as a candidate for the position of chief of the department of mines and mining of the Chicago World's Fair. Dr. Day is eminently qualified for this position both by attainments and experience, and his appointment would be a very happy selection by the World's Fair directory.

Chief Constructor Wilson of the United States Navy was re-appointed for four years. During the war he was superintending inspector and acting constructor at Rowland's Continental Iron Works, New York, handling in the aggregate over $7,000,000 of contract work.

W. B. Worthen, ex-president of the Society of Civil Engineers, has been chosen as chief engineer of the Chicago Drainage Company, to succeed L. E. Cooley.

Charles Paine, for some years vice-president and general manager of the Philadelphia Natural Gas Company of Pittsburgh, has severed his connection with that company, and has removed to Tenafly, N. J. In the future Mr. Paine will give his entire time to the engineering firm of Charles Paine & Sons of New York City, of which he is the senior member. No action has yet been taken looking to filling the vacancy caused by Mr. Paine's resignation.

Thomas Deegan, for some years business manager for James P. Witherow, engineer and contractor, at Pittsburgh, has resigned his position and has located in Chicago, where he will represent the Stirling Boiler Company of New Portage, Ohio. E. C. Darley succeeds him.

Jay Cox, formerly manager of the Bessemer steel plant of the Otis Iron and Steel Company, has accepted the position of manager of the steel plant of the Bellaire Nail Works, at Bellaire, Ohio, made vacant by the resignation of John Cabot, who has located in the South.

Fornsten Berg, chief draftsman at the Homestead Steel Works of Carnegie, Phipps & Co., Limited, at Homestead, Pa., has returned to Pittsburgh after a three months' trip to Europe in the interests of his firm.

Mr. Cramp, the shipbuilder, in speaking recently of the two model steamships of the Inman Line, the City of New York and the City of Paris, as reported by the New York *Tribune*, said that they represented the highest results that had yet been accomplished in the direction of fast and comfortable ships. He said that it would not be possible to make two ships similar to those of the Inman Line for the price for which they were contracted. The cost of each was about $1,750,000. Mr. Cramp says that the Teutonic, which was built after the style of these two steamers to rival them, cost the White Star Line $2,000,000. For this sum his company could build even a better ship. He said that the American style of finishing ships was much superior to the work of foreign contractors. Mr. Cramp said further that no ship could be deemed a success from the shipbuilder's point of view that had to carry ballast when she was fully loaded. He said that the Teutonic did not meet the conditions of a perfect ship in this regard. The two models of the Inman Line when loaded require no ballast and their model of construction, as regards steadiness in a heavy sea, is such as will make them copied for a long time.

Nearly 1,500,000 tons of coal were handled at the tin docks at Duluth and West Superior during the season just closed. Shipments are made from thence to the Dakotas, to Montana, Nebraska, Northern Iowa, Missouri, Minnesota and Wisconsin, and each season witnesses a large increase in tonnage.

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CURRENT HARDWARE PRICES.

DECEMBER 24, 1890.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers' at the figures named.

Adjusters, Blind.

Domestic.....₩ doz $3.00, 33⅓%
Excelsior.....₩ doz $10.00.....50&10&2%
Washburn's Self-Locking.....20@20&10%

Ammunition.—

Caps, Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....34@35¢
E. B. Trimmed Edge, 1-10's.....46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....46@47¢
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B. Genuine Imported.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.00

Cartridges—
Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—
Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00, 2%
All other Primers, $1.20.....2%

Shells—
First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Prize.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%

Shells Loaded—
Standard List, July 19, 1890..40&5@40 &10%

Wads—Price per M.

U.M.C.&W. R. A.—B. E., 11 up...	68¢	Dis. 90&2
U.M.C.&W. R. A.—B. E., 9&10...	82¢	
U.M.C.&W. R. A.—B. E., 8.....	96¢	
U.M.C.& W.R. A.—B. E., 7.....	$1.10	
U.M.C.&W. R. A.—P. E., 11 up..	1.15	
U.M.C.&W. R. A.—P. E., 9&10..	1.50	
U.M.C.&W. R. A.—P. E., 8.....	1.70	
U.M.C.&W.R. A.—P. E., 7.....	1.80	

Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@10.....2.80

Anvils.—

Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....11¼@12¢
Armitage's Mouse Hole.....10½@11¢
Armitage's Mouse Hole, Extra...12@12½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher,
P. S. & W. Co.
Rockford Bit Company.
} 70&10%

Cook's, Douglass Mfg. Co.....55 %
Cook's, N. H. Copper Co.50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32⅓ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&5%
Snell's Jennings Pattern.....60%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....50%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits....30&10%

Bit Stock Drills—
Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Williams' or Holt's, for metal.50&10&10%
Williams' or Holt's, for wood...40&10%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—
Clarks' small, $18; large, $26 ₩ doz.35@35&5%
Ives' No. 4, ₩ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—
Common.....₩ gross $2.75@$3.25
Diamond.....₩ doz $1.10.....25&10%
Bee.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co ...30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—
Ives.....
French, Swift & Co.....
Douglass'.....
} 33⅓@ 33⅓&10%

Bonney's Adjustable, ₩ doz $48...40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—
L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—

Awls, Sewing, Common ₩ gr $1.70, 35%
Awls, Should. Peg, ₩ gr $2.45, 40@40&10%
Awls, Pat. Peg...₩ gr 63¢.....40@40&10%
Awls, Shouldered Brad...2.70 ₩ gr.....35%
Awls, Handled Brad...$7.50 ₩ gr.....45%
Awls, Handled Scratch ₩ gr, $7.50.35&10%
Awls, Socket Scratch, ₩ doz. $1.50.25@30%

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality	$8.00	$8.50
Others	7.50	8.00

Axle Grease—See Grease, Axle.

Axles—

No. 1, 4½@5¢, No. 2 5½@6¼¢ } 3 % cash
Nos. 7 to 14.....65&5%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
Concord Axles, loose collar.....5½@6¢
Concord Axles, solid collar.....6½@7¢
National Tubular Self-Oiling..... 33⅓%@33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances.....40%

No.	2000	20	50
Chatillon, ₩ doz.	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....60&10%

Bars.

Crow—
Cast Steel.....₩ ℔ 4½¢
Iron, Steel Points.....₩ ℔ 3½¢

Basins, Wash—

Standard Fibreware, No. 1, 10½-inch, $2; 12-inch, $2.25; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82...50&10@ 50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—

Egg—
Dover.....₩ doz $1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)..... ₩ doz $3.50
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral (H. & R. Mfg. Co.).....₩ gro $4.50
Improved Acme (H. & R. Mfg. Co.)..... ₩ gro $9.00
Paine, Diehl & Co.'s.....₩ gro $24.00
Silver & Co.....₩ doz $5.50

Culinary—
Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2.....20 %

Bells—

Cow—
Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%
Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Door—
Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank Cone's.....10%
Crank, Connell's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Electric,
Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—
Light Brass.....75&10%
Extra Heavy.....65&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe, Cone's Patent).....25&10@35%

Bellows—

Blacksmiths'.....60&5@65%
Molders'.....40@40&10%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@70&5%
Standard.....60&10&10@70%
Extra.....50&10@60%
N.Y.B.&P.Co., Carbon...50&5@50&10&5%
N.Y.B.&P.Co., Diamond....40&5@40&10%

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1889... 60&10&10@70%
Cleveland Block Co., Mal. Iron.....50%
Moore's Novelty, Mal. Iron.....50%

Boards, Stove.

Wood Lined "Crystal".....50%
"Embossed".....50%
"Oxidized".....45%
Paper Lined Zinc.....55%
"Crystal".....55%
"Embossed".....55%
"Oxidized".....45%

Bolts—

Carriage, Machine, &c.—
Com. list June 10, '84.....70&10&5&2%
Genuine Eagle, list Oct., '84...75&10@80%
Phila. pattern, list Oct. 7, '84..80@80&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890..... 75&10@75&10&5%
Bolt Ends, list Jan. 1, 1890..... 75&10@75&10&5%

Door and Shutter—
Cast Iron Barrel, Square, &c..70@70&10%
Cast Iron Shutter Bolts.....70@70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, " ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list...55&10%
Wr't Sunk Flush, Stanley's list...50&10%
Wr't B.K.Flush. Com'n " ...55&10%

Stove and Plow—
Stove.....60%
Plow.....
R. B. & W., Plow.....60&5%
Tire—
Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84...80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84....80%

Borers, Tap.

Common and Rind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10@30%
Clark's.....33⅓@35%

Borax.....₩ ℔ 9½@10½¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔.....2½¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5%
Ball Braces, net.....$1.12 to $1.25
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Ratchet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10 ;10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
Barber's,
Nos. 10 to 16..... 50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—

Shelf plain, Sargent list, 55&10@55& 10&10%
Shelf, fancy, Sargent's list, 60&10@60 &10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods—See Wire.

Broilers—

Henis' Self-Basting, { Inch..... 9 10 9x11
Per doz...$4.50 5.50 6.50
New Haven.....50%

Buckets, Well.

Galvanized—
Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad.....₩ doz. 14 qt, $4.25@$4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ doz $4.00

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers Butchers'.

Butts—

Brass—
Wrought Brass.....75&10@80%
Cast Brass, Tiebout's'.....50%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—
Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint.....
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns..
Parliament Butts.....
Mayer's Hinges.....
Loose Pin, Acorns.....
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips.....
} ..70&10 @ 75%

Wrought Steel—
Fast Joint, Narrow.....
Fast Joint, Lt. Narrow.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c .....
Inside Blind, Regular.....
Inside Blind, Light.....
Loose Pin.....
} .70&10 @75%

Bronzed Wrought Butts.....50

Calipers—See Compasses.

Calks, Toe—

Gautier.....₩ ℔ 5½@6¢
Dewicks (Burke).....₩ ℔ 5½@6¢

Can Openers—See Openers, Can.

Cards—

Horse & Curry.....10&10&10&10%
Cotton.....10&10&10%
Wool.....10&10&10%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sw Carpet.

Cartridges—See Ammunition.

Casters—

Bed.....
Plate.....
Shallow Socket.....
Deep Socket.....
Yale Casters, list May, 1884...30&10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....60@60&10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%
} Brass....55@55&10%
} Others...60@60&10%

Cattle Leaders—See Leaders, Cattle.

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890.....50& 10@60%

American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.75	5.45	4.55	4.00	3.65	3.50	3.40	3.30

Less than cask lots, add ½@¼¢ ₩ ℔.
German Coil, list Oct. 6, 1890 50&10&5@60%
German Halter Chain, list Oct. 6, 1890 50&10&5@60%
Covert Halter.....60&2%
Covert Traces.....35@35%
Covert Heel Chain.....50&2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—

White.....₩ gr 50¢
Red.....₩ gr 70¢
Blue.....₩ gr 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.
P. S. & W.....
New Haven.....
Witherby.....
Mix.....
Ohio Tool Co.....
} ..75 @ 75&10

Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.
Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$6 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔.....15@16%

Chucks—

Beach Pat.....each, $8.00.....20%
Morse's Adjustable,each, $7.00, 20@20&5%
Morse's Adjustable.....each, $6.00, 30@30&5%
Danbury.....25%
Syracuse, Bals Pat.....
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union No. 1, 5 gallon...$3.25 each
Tiffin Union No. 2, 7 gallon...$3.75 each
Tiffin Union No. 3, 10 gallon...$4.25 each

Clamps—

R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60&5&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.

Butchers'.
Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—

Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16. 65&5%
Superior Axle Clips.....65⅓&5@70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5½¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.

Hardware list.....50&2%

Coffee Mills—See Mills, Coffee.

Collars, Dog, &c.

Medford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company.....50&10@60%

Combs, Curry.

Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....20%
Perfect.....50%

Compasses, Dividers, &c.—

Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord—

Sash.
Common.....₩ lb 10@11¢
Patent, good quality.....₩ lb 13@13½¢
White Cotton Braided, fair...₩ lb 28@29¢
Common Russia Sash.....₩ lb 13½¢
Patent " " .....₩ lb 15¢
Cable Laid Italian Sash.....₩ lb 22@23¢
Indian Cable Laid " .....₩ lb 13¢
Silver Lake—
A Quality, White, 50¢.....10&10&5%
A Quality, Drab, 55¢.....10&10&5%
B Quality, White, 50¢.....28@30%
B Quality, Drab, 55¢.....31@33%
C Quality, White (only).....26@27¢
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab..33¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....25¢
Samson—
Braided, White Cotton, 50¢...30@30&5%
Braided, Drab Cotton, 55¢...30@30&5%
Braided, Italian Hemp, 55¢...30@30&5%
Braided, Linen, 80¢.....30@30&5%

Wire Picture.
Braided or Twisted.....75@75&10%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—

Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—

Grain.....50&5&2@50&10&2%

Crayons.

White Crayons, ₩ gr, 12¢@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins, Curtain.

Cutters—

Meat.
Dixon's ₩ doz.....40&5%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$0.00

Woodruff's ₩ doz.....40&5%

Nos.		100	150
		$15.00	$18.00

Hales Pattern ₩ doz.....70@70&5%

Nos.	11	12	13
	$27.00	$33.00	$45.00

American.....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise.....30%

Nos.	10	12	22	32	42
Each	$3	$2.50	$4	$6	$15

Great American Meat Cutter.....30%

Nos.	112	116	118	120	122
Each	$2.00	$2.75	$3.00	$2.50	$4.00

Miles' Challenge ₩ doz.....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

Home No. 1.....₩ doz, $26.00, 55&10%
Draw Cut, each:

Nos.	5	2	6	8
	$50	$75	$80	$225

.....20@25%
Great American.....30%
Beef Shavers (Enterprise).....20&10@30%
Little Giant.....50%
Chadborn's Smoked Beef Cutter, ₩ doz $36.00

Tobacco.
Champion.....20&10@30%
Wood Bottom.....₩ doz $5.00@$5.25
All Iron.....₩ doz $4.25
Nashua Lock Co.'s..₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%

Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's.₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Cutlery—

Pocket and Table.....Net prices
Wostenholm.....New list in preparation

Dampers, &c—

Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—

Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $12.50@14.00
Leed's.....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz. 15.00
Kohler' New Champion.....₩ doz. $9.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $24.00
Cronk's Post Bars, ₩ doz $60.00, 50&5&50&10%
Gibbs Post Hole Digger, ₩ doz $30.00, 50¢
Imperial, ₩ doz $15.....45%

Dividers—

See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.

Money, ₩ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—

Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5
Ratchet, Whitney's.....20&10%
Retchet, Weston's.....20@25%
Ratchet, Moore's Triple Action..25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85

Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans-See Pans, Dripping.

Drivers, Screw.

Douglas Mfg. Co.....20@20&10%
Disston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
Varnished Handles.....65&10%
Black Handles.....60&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....66⅔&10&10%
P. S. & W.....70%
Knapp & Cowles:
No. 1.....60&20@70%
No. 2.....60&10&10@70&5%
No. 3.....60&5@60&10%
Nos, 4 and 00, Acme and Ideal..50& 5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₩ doz $6.00,25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits.....₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3. $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits ....

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.— No. 4 to No. 54 to Flour, CF

	46 gr.	150 gr.	F. FF.
Kegs, ₩ lb.....4½¢	5 ¢	2½¢	
½ kegs, ₩ lb...4½¢	5½¢	2¾¢	
¼ kegs, ₩ lb...5 ¢	5½¢	3 ¢	
10-lb cans, 10 in case.....6 ¢	6½¢	5 ¢	
10-lb cans, less than 10.....10 ¢	10 ¢	7½¢	

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.

Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Expanded Metal.
List No. 5.

Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Fasteners, Blind—

Mackrell's, ₩ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Washburn's Old Pattern, ₩ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$9.00

Faucets.—

Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@ 60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....60%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....60%
Self-Measuring
Enterprise, ₩ doz $50.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—

Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—

Domestic—
Nicholson Files, Rasps, &c.....50&10@50&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
Other makers, best brands60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60& 10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%

Imported—
Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fixtures.

Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—

Hay, Manure, &c., Asso List..65&5@65&10%
Hay, Manure, &c., Phila. List. 60@60&5%
Plated, see Spoons.

Frames—

Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%

Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons...33⅓@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%

Freezers, Ice Cream—

White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless and Giant.....60&10%
Zero and Pet.....65&10%
Boss.....65&10&10%
Keystone, P. D. & Co., each, $1.50.....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.

Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10%; 2 to 5 gro., 20%; 5 to 10 gro.....30%
Copper, 1 to 6 doz., 15%; 6 to 12 doz., 20%; over 12 doz.....25%

Fuse— ₩ 1000 ft

Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 2.35
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr. 4.35
Triple Taped Fuse, for very wet gr.. 5.00
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—

Stebbin's Pattern.....75&10&5@80%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Bush's.....30%
Lincoln's Pattern.....70@70&10%
Weed's.....20&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.

Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....25%
Wire, Brown & Sharpe's.....10@30%
Wire, P. S. & W. Co.....10&10%

Gimlets—

Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₩ gr $12.....25@25&5%

Glue—

Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
The Le Page Co.'s Improved Process 25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.

Fraser's.....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $9.50
Dixon's Everlasting, in bxs...₩ doz 1 lb. $1.30; 2 lb $2.00
Dixon's Everlasting....10-lb pails, en. 35¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—

Small, at factory.....₩ ton $7.50@9.00

Grindstone Fixtures—See Fixtures, Grindstone.

Hack Saws—See Saws.

Hafts, Awl.

Sewing, Brass Fer. ₩ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₩ doz.....40&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top. ₩ gr $10.00....45&10%
Pat. Peg, Leather Top. ₩ gr $12.00.45&10%

Halters.

Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%
Covert's Adj. Web Halters.....35&2%

Hammers—

Handled Hammers—

Maydole's, list Dec. 1, '85.....25&10@35%	
Buffalo Hammer Co.	50@50&10%
Humason & Beckley	
Atha Tool Co.	
Fayette R. Plumb.	
C. Hammond & Son.	
Verree.	

Hartford, Nail Hammers...35&10@40&5%
Hartford, Machinists, &c.....50@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Warner & Nobles.....40&10%
Nelson Tool Works.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%

Heavy Hammers and Sledges—
3 lb and under.....₩ lb 40¢
3 to 5 lb.....₩ lb 36¢ } 70@70&10%
Over 5 lb.....₩ lb 30¢
Wilkinson's Smiths.....10½¢@11¢₩ lb

Handcuffs and Leg Irons—See Police Goods,

Handles—

Atkins' No. 1 Loop, ₩ pair, 28¢; No. 13¢; No. 6, 16¢; No. 2 and No. Reversible, 18¢.

Cross-Cut Saw Handles—
Boynton's Loop Saw Handles, 50¢....60%
Champion.....15%

Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	°	°
Per doz.	$0.90	1.00	1.13	1.35 1.50

60&10&10

Roggin's Latches.....₩ doz 30¢@35¢
Bronze Iron Drop Latches..₩ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88 ..... net
Barn Door, ₩ doz $1.40..... 10&10%
Chest and Lifting..... 70%

Wood—

Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₩ gr $2.00
Hickory Firmer Chisel, ass'd. ₩ gr 4.50
Hickory Firmer Chisel, large. ₩ gr 5.00
Apple Firmer Chisel, ass'd...₩ gr 5.00
Apple Firmer Chisel, large...₩ gr 6.00
Socket Firmer Chisel, ass'd...₩ gr 3.00
Socket Framing Chisel, ass'd. ₩ gr 5.00
} dis 40%

J. S. Smith & Co.'s Pat File.....50%
File, assorted.....₩ gr 7 75
Auger, assorted.....₩ gr 5.00
Auger, large.....₩ gr 7.00
} 40@ 40&10%

Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass.....₩ set $1.21
Pat. Auger, Swan's.....₩ set $1.00
Hoe, Rake, Shovel, &c. .....50&10 %

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track 65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Climax Anti-Friction.....55%
Climax Anti-Friction for Wood Track55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling's Imp'ved (Anti-Friction).65&10%
Victor, No. 1, $15.00; No. 2, $16.50, No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....50&10@60%
The Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ₩ doz pr. 4 in, $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50&5%
Wood Track Iron Clad, ₩ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ₩ set $6.00.....20%
Eclipse.....20&10%
Felix, ₩ set $4.50.....20%
Richards'.....30@30&10%
Lane's Standard.....50&5@50&10%
Lane's New Standard.....50@50&5%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, ₩ set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel Cast Iron.....50%
Nickel, Malleable Iron and Steel 40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's
Hunt's
Hurd's
Mann's.
Peck's.
Underhill's.
Buffalo Hammer Co.
Fayette R. Plumb.
C. Hammond & Son.
Kelly's.
Sargent & Co.
P., S. & W. Co.
Ten Eyck Edge Tool Co.
} 40 & 10 @ 50&5 %

Collins.....10%
Schulte, Lohoff & Co.....50@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Palmer.....50&5&10%
Seymour .....70&2%
Huffer 50%
Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible. ...70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50. .....10%

Gate Hinges—

Western.....₩ doz $4.40, 60%
N. E.....₩ doz $7.00, 55%
N. E. Reversible.....₩ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....₩ doz $5.00, 55&10%
Automatic .....₩ doz $12.50, 50%
Common Sense.. ...₩ doz pair $4.50, 50%
Seymour's..... ... 45&10%
Shepard's .....60&10&5%
Reed's Latch and Hinges. ₩ doz $12.00, 50%

Spring Hinges—

Union Spring and Blank Butts.....40%
Gear's Spring Hinge Co.'s list, March 1886 ....30%
Acme.....30%
J. S.....25&10%
Empire and Crown.....20%
Hero and Monarch 55%
American, Gem, and Star.....20%
Oxford.....20%
Barker's Double Acting..... ... 25%
Union Mfg. Co.....25%
Sommer's.....30%
Suckman's.....15@20%
Chicago.....30%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....60%
Reliable.....60%
Champion.....60%
Bardsley's Patent.....40%
Stearn's.....50&10%
Niagara, Holdback pattern, per gross, ...$14.00

Wrought Iron Hinges

Strap and T.....75&10%
Screw Hook and Strap. { 6 to 12 in., ₩ ℔ .4 2-10¢ / 14 to 20 in., ₩ ℔ .3 7-10¢ / 22 to 36 in., ₩ ℔ .3 2-10¢
Heavy Welded Hook. { 6 to 12 in., ₩ ℔ .4 2-10¢ / 14 to 20 in., ₩ ℔ .3 7-10¢ / 22 to 36 in., ₩ ℔ .3 2-10¢
Screw Hook and Eye { ½ in., ₩ doz $1.50 / ⅝ in., ₩ doz $2.45 / ¾ in., ₩ doz $3.80 } 10%
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges "Providence" { 8, 10 & 12 in., ₩ ℔.....5¢ / over 12 in., ₩ ℔.....4¢

Hoes—

Eye—

D. & H. Scovil.....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat. / Am. Axe and Tool Co., S. & O. Pat. } 50&10&5 @60%
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60&10%

Handled—

Garden, Mortar, &c.....65&5@65&10%
Planter's, Cotton &c.....65&5@55&10%
Warren Hoe.....60%
Magic .....₩ doz $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₩ doz $18.....60%

Bit.

Extension,
Barber's, ₩ doz $15.00.....40@40&10%
Ives, ₩ doz $20.00.....60&5@60&10%
Diagonal. .....₩ doz $24.00, 40%
Angular.....₩ doz $24.00, 40&5%

File and Tool—

Bair Pat.....₩ doz $4.00; 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list.....
Bird Cage, Reading.....
Clothes Line, Sargent's list..
Clothes Line, Reading list.
} 60&10&10%

60&10@60&10&10%
Ceiling Sargent's list. .....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%

Wrought Iron—

Cotton.....₩ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)...50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886.....50%
Wire Coat and Hat, Miles', list April, 1886.....50%
Indestructible Coat and Hat.....45%
Wire Coat and Hat, Standard.....60%
Handy Hat and Coat.....50&10%
Steady Ceiling Hooks.....50&10%
Belt .....80@80&10%
Atlas, Coat and Hat.....60%

Miscellaneous.

Grass, No. 2, $2.00: No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₩ doz $2.25
Bush.....65@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks ... .See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition.....75@75&5%
Standard.....50&10&5@60&10&10%
Extra.....50&10@60%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee...₩0&10 @ 60%

Huskers—

Blair's Adjustable.....₩ gr $8.00
Blair's Adjustable Clipper. ..₩ gr 7.00
Hubbard's Solid Steel..... ...₩ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory ...₩ 100 ℔. $2.30@$2.40
Self-Heating.....₩ doz $9.00 net
Self-Heating, Tailors'....₩ doz $18.00 net
Mrs. Pott's Irons..... ... .50&5%
Enterprise Star Irons. .....50&5%
Cold Handle Sad Irons..... .....50&5%
Ideal Irons new list.50&10@50 & 10&10%
Salamander, Irons..... .....25%
B. B. Sad Irons, ₩ ℔.....3 @3¼¢
Combined Fluter and Sad Iron, ₩ doz. $15.00.....15%
Fox Reversible, Self-Fluter ₩ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8¼¢, 15%
New England.....8¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible.....20@20&5%
National Self-Heating..... .....30 %

Soldering—

Soldering Coppers..... ₩ ℔ 22 @ 23¢
Covert's Adjustable, list Jan. 1, 1886. 35&2%

Irons, Pinking, per dos., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy..... .....33⅓%
Victor.....33⅓%

Kettles— Spun. Stamped.
Brass, 7 to 17 in., ₩ ℔.... 24¢ 22 ¢
Brass larger than 17 in., ₩ ℔..... 26¢ 24½¢
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....₩ doz $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives, 1st Oct. 1, 1890 .....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Nichols' Butcher Knives.....40&10%
Ames' Shoe Knives.....20@25%
Ames' Bread Knives. ₩ doz $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent.....$3.50

Corn—

Bradley's.....10%
Wadsworth's.....25%

Drawing—

Witherby.....
P. S. & W .....
Mix .....
New Haven.....
Merrill .....
} ..75 @ 75&10 %

Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Hay and Straw—

Lightning. Mfrs'. price ₩ doz $18.00, 25% But jobbers cut this price freely, often selling at $8 @ $8.50.
Wadsworth's.....40&7½@40&10%
Carter's Needle.....₩ doz $11.00@$11.50
Heath's.....₩ doz $13.00@13.50
Auburn Hay, Comb. and Spear Point..50%
Auburn, Straw.....40%
Nolin's Hay .....₩ doz. $7.00 @ $8.00

Mincing.

Am. (2d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ₩ doz, Single, $2.00; Double, $3 .....40&45%
Knapp & Cowles.....50&10@50%
Buffalo Adjustable.....₩ doz $3.00 .25%
Buffalo Double Adj'table.₩ doz $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....₩ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladles.—
Melting, Sargent's.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...₩ doz $4.00, 40%
Melting, P. S. & W.....35&10@40%
Melting, Warner's.....30%

Lanterns—

Tubular—

Plain with Guards, ₩ doz.....$4.00@4.25
Lift Wire, with Guards.....$4.50@4.75
Square Plain, with Guards.....$4.00@4.25
Sq. Lift Wire, with Guards.....$4.25@4.50
Without Guards, 25¢ ₩ dos less.

Miscellaneous.

Police, Small, $6.00; Medium, $7.25; Large, $9.75.....20@25%

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason. Beckley & Co.'s.....70%
Sargent's.....66⅔&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters. 35%
Crown, Eagle and Shield.....50%
Reiher's, list Sept. 1, 1890.
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60%
Imperial.....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton.....45%
Wire Clothes.. Nos. 12 16 20
100 ft. $4 00 $3 50 $3.00
Ventilator Cord, Samson Braided, White or Drab Cotton..₩ doz $7.50, 30%

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85..33⅓&2%
Deitz, Nos. 36 to 39.....40%
Deitz, Nos. 51 to 63.....40&10%
Deitz, Nos. 86 to 96.....30%
Stoddard Lock Co.....30&33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&2%
"Champion" Cab. and Combin...33⅓%
Yale.....net prices
Romer's.....25%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 20, 1889. } 65&10@70 Much lower net prices often made.
Mallory, Wheeler & Co., list July, '88.
Sargent & Co., list Aug. 1, '88
Reading Hardware Co., list Feb. 2, '88.

Brittan, Graham & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deitz Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

Padlocks—

List Dec. 23, '84. .....75&10%
Brittan, Graham & Mathes.....75&10%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....25&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, No. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deitz.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....45%
Horseshoe.....₩ doz, $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian: Nos. 119, 120, 130 and 140... ..90&10%
Other Nos.....65%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker Barry & Co.
No. 41 line.....45&5%
No. 31 line .....60&5%
No. 21 line.....75@5%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₩ gr.. .33⅓%
Ferguson's 33⅓%
Morris and Triumph, list Aug. 16, 1886, 60&2%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&33⅓%
Reading.....60%&10@60%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'zed ₩ gr $4.00
Common Sense, Nickel Plated ₩ gr $10.00
Universal 30%
Kempshall's Gravity.....60%
Kempshall's Model .....60@60&10%
Corbin's Daisy, list Feb. 15, 1888.....70%
Payson's Perfect.....60@60&10%
Huguniin's Sash Balances.....25&5&2%
Huguniin's New Sash Locks.....25&5&2%
Stoddard "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Liesche's, Nos. 100 and 110, ₩ gr $8; 105, $10.00. .....20&10%
Davis, Bronze, Barnes Mfg. Co..... 50%
Champion Safety, list March 1, 1888 55@55&5%
Security.....70%
Buckeye.....₩ gro $4.80

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₩ doz, $1.75; ₩ gross..... .....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.	
Douglas		$5.50	$6.75	.....50%
Snell's, Rice's Pat.		5.50	6.75.	.40&10&10%
Jennings	.....	5.50	6.75.	45@45&10%
Other Machines...		2.35	2.75.	.....
Phillips' Patent with Augers ...		7.00	7.50	....

Fluting.

Knox, 4½-inch Rolls .....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3½-inch Roll, $2.15.....35%
Eagle, 5½-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each 35%
Crown Jewel, 6 in .....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter .....each, $1.50
Geneva Hand Fluter, White Metal ₩ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00. .....30%
Shepard Hand Fluter, No. 85 ₩ dos 15 80 . ...40%

Shepard Hand Fluter, No. 110 ₱ doz $11.00.....40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00.....40%
Clark's Hand Fluter. ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
₱ doz $10.00.....10%
Buffalo .....

Hoisting—
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Differential Pulley Block.....40%
Energy Mfg. Co's.....25%

Washing—
Anthony Wayne, ₱ doz No. 1, $51; No. 2, $15; No. 3, $12

Mallets.
Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
E. & L. Block Co., Hickory & L. V. ..... 30@30&10%

Mattocks. Regular list.....60&10%

Measures—
Standard Fiberware, No. 1, peck, ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Mills.
Coffee—
Box and Side, List Jan. 1, 1888.....60&2%
American, Enterprise Mfg Co.....20&10&30%
The Swift, Lane Bros.....20&10%

Mincing Knives — See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers — See Drawers, Money.

Mowers, Lawn.
Leading makers.....60@60&10&5%
Other makers.....60&10&5@60&10&10%
Pennsylvania.....60%
Continental.....60%
New Model.....60&10&5%
New Quaker City.....60&10&5%
Great American.....60&10&5%

Muzzles—
Safety.....₱ doz. $3.00, 25 %

Nails.

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15,'89.....75&10%
Tack Mfrs.' list.....70%
Wire Nails, Standard Penny.
Card June 1, '89, base .... $2.35 @ $2.45

Horse—See Trade Report.

Nos.	6	7	8	₱	10
Ausable....	28¢	26¢	25¢	24¢	23¢.

40&5&2%

Clinton, Fin..	19¢	17¢	16¢	15¢	14¢..... 30%
Essex	28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Lyra.....	19¢	17¢	16¢	15¢	14¢..... 30 %
Snowden	19¢	17¢	16¢	15¢	14¢..... 30 %
Putnam.....	23¢	21¢	20¢	19¢	18¢.

1000 ℔ in year 15%

Vulcan.....	23¢	21¢	20¢	19¢	18¢..12½&5%
Northwest'n.	25¢	23¢	22¢	21¢	20¢.

25@25&5%

Globe.....	23¢	21¢	20¢	19¢	18¢...25&10%
Boston.....	23¢	21¢	20¢	19¢	18¢.

20&5&5&2½%

A. C.....	25¢	23¢	22¢	21¢	21¢.

25&10@33⅓&5%

C. B.-K.....	25¢	23¢	22¢	21¢	20¢.

25&10@33⅓&5%

Maud S.....	25¢	23¢	22¢	21¢	21¢.

40&10&5&2 %

Champlain	28¢	6¢	25¢	24¢	23¢.

25&10@10%

New Haven..	28	26¢	25¢	24¢	23¢.

25&10@25&10@10%

Saranac.....	23¢	21¢	20¢	19¢	18¢...30&10%
Champion ...	25¢	23¢	22¢	21¢	20¢.

10&10@10%

Capewell....	28¢	26¢	5¢	24¢	23¢.

35&5@35&10%

Star.....	23¢	21¢	19¢	18¢.	

10&10@10&12½%

Anchor.....	23¢	21¢	20¢	19¢	18¢..... 35%
Western.....	23¢	21¢	20¢	19¢	18¢...40&10%
Empire Bronzed.					14 ₱ ℔.

Picture—
Brass Head, Sargent's list.....50&10&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list.50&10&10%
Porcelain Head, Combination list..40&10%
Niles' Patent.....40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—
Nuts, off list Dec. 18,1889: Square. Hex.
Hot Pressed..... 5.10¢ 5.70¢
Cold Punched..... 4.80¢ 4.90¢
In packages of 100 ℔, add 1-10¢ ₱ ℔. net: in packages less than 100 ℔, add ½¢ ₱ ℔, net.

Oakum—

Government.....₱ ℔ 7@7½¢
U. S. Navy.....₱ ℔ 6@6½¢
Navy.....₱ ℔ 5½¢@5½¢

Oilers—
Zinc and Tin.....65&10@70%
Brass and Copper.....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.00; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list.....40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Gem P. D. & Co. ..... ₱ gro. $2
Steel, Draper and Williams.....50%

Openers, Can.
Messenger's Comet.....₱ doz $3.00, 25%
American.....₱ gross $3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....₱ doz $3.75, 20%
No. 4 French.....₱ doz $2.25, 55@60%
No. 5, Iron Handle.....₱ gr $6.00, 45@50%
Eureka.....₱ doz $2.50, 10%
Sardine Scissors.....₱ doz $2.75@3.00
Star.....₱ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50 50&10&10%
$2.50; No. 2, $1.50...40%
World's Best, ₱ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₱ doz $3.00..... 55&5%
Domestic, ₱ doz $2.50..... 45%
Champion ₱ doz $2.00..... 50%

Packing, Steam—

Rubber—
Standard.....60&5@65%
Extra.....50@50&5%
N. Y. B. & P. Co., Standard..40&10@50%
N. Y. B. & P. Co., Empire.....60&5@65%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 10@15%
Jenkins' Standard. ₱ ℔ 80¢,...25@25&5%

Miscellaneous—
American Packing.....10¢@11¢ ₱ ℔
Russia Packing.....14¢ ₱ ℔
Italian Packing.....13¢@14¢ ₱ ℔
Cotton Packing.....15¢@17¢ ₱ ℔
Jute.....7¢@8¢ ₱ ℔

Padlocks—See Locks.

Pails.

Galvanized Iron—

	Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25	
Hill's Heavy Weight, ₱ ds.	3.00	3.25	3.75	
Helwig's.	2.50	2.75	3.00	
Sidney Shepard & Co.....	2.35	2.85	3.05	
Iron Clad.....	2.50	2.75	3.00	
Fire Buckets.....	2.75	3.25	3.50	

Buckets, see Well Buckets.
Indurated Fibre Ware—25%
Star Pails, 12 qt..... ₱ doz $6.00
Fire, Stable and Milk, 14 qt..₱ doz $7.80

Standard Fibre Ware—

	Plain.	Decr'd
Water Pails, 12 qt., per doz..$4.00		$4.50
Dairy Pails, 14 qt., per doz. 4.50		5.00
Fire Pails, No.1, 12 qt. per doz 4.50		
Fire Pails, No.2, 14 qt. per doz 5.00		
Sugar Pails.....	6.00	6.50
Horse Pails.....	5.00	
Buggy Pails.....	4.00	
Slop Jars (bal. trap).....	8.00	9.00
Chamber Pails, 14-qt.....	6.50	7.50

Pans.

Dripping.
Small sizes..... ₱ ℔ 6¼¢
Large sizes..... ₱ ℔ 5½¢
Silver & Co. (Covered)..... 40%

Fry—
Standard List:

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods.....70&10%
Acme Fry Pans.....60&10%

Paper and Cloth—

Sand and Emery—
List April 19, 1886.....50@50&10%
Sibley's Emery and Crocus Cloth.....30%

Parers.

Apple.
Advance..... ₱ doz $4.75
Baldwin..... ₱ doz 5.25
Bonanza..... each 5.00
Champion..... ₱ doz 7.25
Daisy..... ₱ doz 4.00
Dandy..... each 7.50
Eureka, 1888..... each 10.00
Family Bay State..... ₱ doz 12.00
Favorite..... ₱ doz 5.00
Gem..... ₱ doz 5.25
Gold Medal..... ₱ doz 4.00
Ideal..... ₱ doz 4.00
Improved Bay State..₱ doz 27.00@30.00
Little Star..... ₱ doz 4.50
Monarch..... ₱ doz 13.50
New Lightning..... ₱ doz 5.50
Oriole..... ₱ doz 4.00
Penn..... ₱ doz 4.00
Perfection..... ₱ doz 4.00
Pomona..... ₱ doz 4.00
Rocking Table..... ₱ doz 6.00
Turntable..... ₱ doz 4.50
Victor..... ₱doz. 13.50
Waverly..... ₱ doz 4.00
White Mountain..... ₱ doz 4.00
72..... ₱ doz 4.25
76..... ₱ doz 5.75
78..... ₱ doz. 6.50

Potato—
White Mountain..... ₱ doz $4.50
Antrim Combination..... ₱ doz $5.50
Hoosier..... ₱ doz $13.50
Saratoga..... ₱ doz $5.50

Pencils—
Faber's Carpenters'..... high list 50%
Faber's Round Gilt..... ₱ gro $5.25
Dixon's Lead..... ₱ gro $4.50
Dixon's Lumber..... ₱ gro $6.75
Dixon's Carpenters'..... 40&10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.

Bow—
Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W Co... 50&10@50&10&5%

Curtain—
Silvered Glass.....net
White Enamel.....net

Escutcheon,
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.
1¼ and under, Plain.....47½%
1¼ and under, Galvanized.....40%
1½ and over, Plain.....60%
1½ and over, Galvanized.....47½%
Boiler Tubes, Iron.
1¾ and under.....45%
2-inch and larger.....50%

Planes and Plane Irons—

Wood Planes—
Molding.....30&2%
Bench, First Quality.....45&2%
Bench, Second Quality.....50&2%
Bailey's (Stanley R. & L. Co.)..... 40&10%

Iron Planes—
Bailey's (Stanley R. & L. Co.)..... 40&10@40&10&10%
Miscellaneous Planes (Stanley R. & L. Co.)..... 20&10@20&10&10%
Victor Planes (Stanley R. & L. Co.)..... 20&10@20&10&10%
Steer's Iron Planes.....35@35&10%
Merrien Mal. Iron Co.'s.....40@40&10%
Davis's Iron Planes.....40@40&10%
Birmingham Plane Co.....50@50&10%
Gage Tool Co.'s Self-Setting...20&10&10%
Chaplin's Iron Planes.....40@40&10%
Sargent's..... 30&10@30&10&10%
Standard Tool Co.....50@50&5%

Plane Irons—
Butcher's.....$5.00@$5.25 to 2
Buck Bros.....30%
Auburn "Thistle.....
Ohio..... } 35&2%
Sandusky.....
S. & I. J. White.....25%

Plates.
Felloe ..... ₱ ℔ 6¢@6½¢

Pliers and Nippers—
Button's Patent.....50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz..... 20&10@33⅓&5%
Humason & Beckley Mfg. Co..50&50&10%
Gas Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.....40%
Russell's Parallel.....25%
P. S. & W. Cast Steel.....50%
P. S. & W. Tinners' Cutting Nippers, add 5% dis 10%
Carew's Pat. Wire Cutters.....20%
Morrill's Parallel, ₱ doz, $12.00.....30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—
Regular List.....70&10@70&10&10%
Disston's.....50%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....30%
Davis' Inclinometers.....10&10%

Ponchers.
Egg.
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $8.00..... 25%
Silver & Co., 6-Ring..₱ doz $4; 3-Ring $2

Pokes, Animal—
Bishop's I. X. L..... ₱ doz $6.00
Bishop's O. K..... ₱ doz $5.25
Bishop's Pioneer..... ₱ doz $3.75
Bishop's American..... ₱ doz $2.75
Eagle, Double Stale..... ₱ doz $5.75
Eagle, Single Stale..... ₱ doz $3.75
Buckeye, Single Stale..... ₱ doz $2.75

Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00; 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00.....25%
J. P. Lovell's Police Goods.....25%

Polish, Metal.
Prestoline.....30%
Prestoline Paste.....33⅓%
Gaston's Silver Compound.....33⅓%

Polish, Stove.
Joseph Dixon's..... ₱ gro $6.00, 10%
Gem..... ₱ gro $4.50, 10%
Gold Medal..... ₱ gro $6.00, 25%
Mirror..... ₱ pro $6.00, —%
Lustro..... ₱ gro $4.75
Ruby..... ₱ gro $3.75
Rising Sun, 5 gro lots..... ₱ gro $5.50
Dixon's Plumbago..... ₱ ℔ 8¢
Boynton's Noon Day, ₱ gro..... 13.00
Parlor Pride Stove Enamel..₱ gro
Yates' Liquid, 2 3 5 10 gal.... ₱ gal ...$0.80 .70 .60 .50
Yates Standard Paste Polish, 10-℔ cans, ₱ ℔ 12½¢
Jet Black..... ₱ gro $3.50
Japanese..... ₱ gro $3.50
Fireside..... ₱ gro $2.50
Diamond O. K. Enamel..... ₱ gro $19.00
Bonnell's Liquid Stove Polish. ₱ gro $9.00
Bonnell's Paste Stove Polish..₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans..... 12½¢
Black Jack Water Paste, 5 and 10 ℔ cans..... 12½¢
Nickel Plate Paste..... ₱ gro $6.00

Poppers, Corn—
Round or Square, 1 qt..₱ gr $10.00@10.50
Round or Square, 1½ qt..₱ gr $15@15.50
Round or Square, 2 qt..₱ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.
Glue—
Tinned.....40%
Enameled.....40&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

Presses.
Fruit and Jelly—
Enterprise Mfg. Co.....20&10@30%
Heuts..... ₱ doz $3.50
Shepard's Queen City.....40%
Silver & Co..... ₱ doz $2.75

Pruning Hooks and Shears.—See Shears.

Pullers.
Nail.
Curtiss Hammer..... ₱ doz $9.00
Giant, No. 1..... ₱ doz. $18.00, 10%
Giant, No. 2..... ₱ doz, $15.00, 10%
Pelican..... ₱ doz, $9.00, 25%

Pulleys—
Hot House, Awning, &c.....60&10%
Japanned Screw..... 60&10%
Brass Screw.....60&10%
Japanned Side..... 60%&10%
Japanned Clothes Line..... 60&10%
Empire Sash Pulley..... 55@60%
Moore's Sash, Anti-Friction.....50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50.....50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70.....50%
Hay Fork, "P" Common and Pat. Bushed.....20%
Hay Fork, Tarbox Pat. Iron.....20%
Hay Fork, Reed's Self-Lubricating ...60%
Shade Rack.....45%
Tackle Blocks.....See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00..... 40%

Pumps—
Cistern, Best Makers.....60@60&10%
Pitcher Spout, Best Makers.....67½@70%
Pitcher Spout, Cheaper Goods.70@70&5%

Punches—
Saddlers' or Drive, good, ₱ doz...60@65%
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co's Springfield Socket.50&5%
Spring, good quality.... ₱ doz $2.50@2.60
Spring, Leach's Pat.....15%
Bemis & Call Co.'s Spring and Check..40%
Solid Tinners', P.S.&W.Co., ₱ doz $1.44, 55%
Tin'rs' Hollow Punches P.S.&W.Co.20&2%
Rice Hand Punches.....15%
Avery's Revolving.....40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—

Sliding Door, Wr't Brass, ₱ ft 35¢.....15%
Sliding Door, Bronzed Wr't Iron..₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door Light. In. ½ ¾ ⅞
Per 100 feet.....$2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 feet....	$2.15	2.70	3.25..net

Terry's Steel Rail, ₱ foot.....4½¢
Victor Track Rail, 7¢ ₱ foot.....50&2%
Carrier Steel Rail, ₱ foot.....4½¢
Moore's Wrought Iron.....25%

Rakes—
Cast Steel, Association goods...66⅔@70%
Cast Steel, outside goods 60&10&10@70&5%
Malleable.....70@70&5%
Gibbs Lawn Rake.....$12.00, 50&15
Canton Lawn Rake..... $9.00, 50&10
Ft. Madison Prize Bow Brace and Peerless..... 65%
Fort Madison Steel Tooth Lawn Rake, $6.00.....25%

Razors—
J. R. Torrey Razor Co.....20%
Wostenholme and Butcher, $10.00 to £, 10%
Jordan's A A A1, list Nov. 1, 1889.....50%
Jordan's Old Faithful, list Nov. 1,'89.50%
Electric.....List net

Razor Strops—See Strops, Razor.

Rings and Ringers.
Bull Rings—
Union Nut Co.....55%
Sargent's.....60%&10@70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70&10%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%

Hog—
Top of the Hill Ringers..... ₱ doz $2.00
Top of the Hill Rings..... ₱ doz $1.25
Hill's Improved Ringers..... ₱ doz $1.25
Hill's Old Style Ringers..... ₱ doz $1.12½
Hill's Tongs..... ₱ doz $3.00
Hill's Rings..... ₱ doz bxs $1.00
Perfect Rings..... ₱ doz bxs $1.50
Perfect Ringers..... ₱ doz $2.15@$2.25
Blair's Hog Ringers..... ₱ doz $2.00
Blair's Hog Rings..... ₱ doz 90¢@$1.00
Champion Ringers..... ₱ doz $2.00
Champion Rings, Double..... ₱ doz $2.25
Brown's Ringers..... ₱ doz $2.00
Brown's Rings..... ₱ doz $1.15@1.25

Rivets and Burrs—
Iron, list Nov. 17, '87.....40%
Copper.....50@50&10%
Coppered Iron, Bettina Brand.....40%

Rivet Sets—See Sets.

Rods—
Stair, Brass.....25&2%
Stair, Black Walnut.. ..... ₱ doz 40¢

Rollers—
Barn Door, Sargent's list.....60&10&10%
Acme Moore's Anti-Friction.....55%
Union Barn Door Roller.....70%

Rope—*See Trade Report.*
Manila..⅛ in. and larger..... ₱ ℔ 11¾¢
Manila..... ⅛ in. ₱ ℔ 12¼¢
Manila..... ¼ and 5-16 in. ₱ ℔ 13¼¢
Manila Tarred Rope..... ₱ ℔ 11 ¢
Manila, Hay Rope..... ₱ ℔ 11¾¢
Sisal..... ¼ inch and larger ₱ ℔ 8 ¢
Sisal..... ⅜ in. ₱ ℔ 8½¢
Sisal..... ¼ and 5-16 in. ₱ ℔ 8¾¢
Sisal, Hay Rope..... ₱ ℔ 8 ¢
Sisal, Tarred Rope..... ₱ ℔ 7½¢
Sisal, Medium Lathe Yarn..... ₱ ℔ 7 ¢
New Zealand..⅛ in. and larger ₱ ℔ 7¾¢
New Zealand..... ⅜ inch, ₱ ℔ 8¼¢
New Zealand..¼ and 5-16 inch, ₱ ℔ 9¼¢
New Zealand, Hay Rope..... ₱ ℔ 7¾¢
New Zealand, Tarred Rope.... ₱ ℔ 7½¢
Note.—Manufacturers' prices on above ¾¢ ₱ ℔ less, f.o.b. factory.
Cotton Rope..... ₱ ℔ 15@18¢ net
Jute Rope..... ₱ ℔ 6¼@6¾¢

Wire—
List May 1, 1886.
Iron.....32½&2½%
Iron, Galvanized.....40&2½%
Cast Steel.....40&2½%

Rules—
Boxwood.....80&10&10@80&10&10&10%
Ivory.....50@50&10%
Starrett's Rules and Straight Edges, Steel.....25&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery.

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—See Weights, Sash.

Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—
Disston's Circular..... 45%
Disston's Cross Cuts..... 45%
Disston's Hand..... 20%
Woodrough & McFarlin.
Hand, Panel and Rip..... 25%
Narrow Champion Cross Cuts with Handles, ₱ foot..... 20¢
Champion Thin Back Cross Cuts, ₱ foot..... 28¢
Champion Extra Thin Back Cross Cuts, ₱ foot..... 31¢
One Man Champion Cross Cuts, ₱ foot..... 40¢
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip..... 30%
Narrow Champion Cross Cuts with Handles, ₱ foot..... 20¢
Champion Thin Back Cross Cuts, ₱ foot..... 28¢
Champion Extra Thin Back Cross Cuts, ₱ foot..... 31¢
One Man Champion Cross Cuts, ₱ ft. 40¢

Atkins' Circular Shingle and Heading ..... dis 50%
Atkins' Silver Steel Diamond X Cuts ..... ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ..... ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ..... ₱ foot 32¢
Atkins' Champion and Electric Tooth X Cuts ..... ₱ foot 30¢
Atkins' Hollow Back X Cuts. ..₱ foot 20¢
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles, ₱ foot 40¢
Peace Circular and Mill 45%
Peace Hand Panel and Rip 25%
Peace Cross Cuts 45%
Richardson's Circular and Mill 45%
Richardson's X Cuts 45%
Richardson's Hand, &c 25%
C. E. Jennings & Co., Hand, Panel and Rip 25%

Hack Saws—

Griffin's, complete ..... 40&10@50%
Griffin's Hack Saw, Blades ..... 40&10@50%
Star Hack Saws and Blades 25%
Eureka and Crescent 25%

Scroll—

Lester, complete, $10.00 ..... 25%
Rogers, complete, $4.00 ..... 25%
Barnes' Builders' and Cabinet Makers', $15 ..... 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161 ..₱ doz $6.75@$7.00
Union Platform, Plain ..... $2.10@2.20
Union Platform, Striped ..... $2.20@2.30
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls ..... 30@30&10%
Riehle bros.' Platform 40%

Scale Beams—See Beams, Scale

Scissors, Fluting 45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.50 ..... 30&10%
Box, 1 Handle ..₱ doz $4.00, 10%
Box, 2 Handle ..₱ doz $6.00, 10%
Defiance Box and Ship ..... 20&10%
Foot ..... 50&10@60%
Ship, Common ..₱ doz $3.50 net
Ship, R. I. Tool Co 10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron ..... 55&10@55&10&10%
Bench, Wood, Beech ..₱ doz $2.25
Bench, Wood, Hickory ..... 20&10%
Hand, Wood ..... 25&10@25&10&5%
Lag, Blunt Point, list Jan. 1, 1890. 75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 ..... 75@75&10%
Bed ..... 25&5%
Hand Rail, Sargent's ..... 60%&10%
Hand Rail, H. & B. Mfg. Co ..70&10@75%
Hand Rail, Am. Screw Co 75%
Jack Screws, Millers Falls list. .50@50&5%
Jack Screws, P. S. & W 35%
Jack Screws, Sargent ..60&10@60&10&5%
Jack Screws Stearns' ..... 40@40&10%

Cork—

Humason & Beckley Mfg. Co. .40&10@50%
Williamson's ..... 33⅓@33⅓&5%
Howe Bros & Hulbert 35%

Machine—

Flat Head, Iron 55%
Round Head, Iron 50%

Wood—

List March 1, 1889.

Flat Head Iron	50%	Extra 10 @ 10&5 % often given.
Round Head Iron	40%	
Flat Head Brass	45%	
Round Head Brass	35%	
Flat Head Bronze	45%	
Round Head Bronze	35%	
Rogers' Drive Screws		66⅔%

Scroll Saws—See Saws, Scroll.

Scythe Snaths—See Snaths, Scythe.

Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools, No. 20, ₱ doz $10.00 ..... 55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $6 ..... 25@25&10%
Miller's Falls Adj. Tool Hdls., Nos. 1, $12, 2, $18 ..... 25%
Henry's Combination Haft ..₱ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50. .70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50 ..... 50&10%

Nail—

Square ..₱ gr., $4.00@$4.25
Round ..₱ gr. $3.25
Buck Bros 27½%
Cannon's Diamond Point ..₱ gr., $12, 20%

Rivet.

Regular list ..... 50&10%

Saw—

Stillman's Genuine ..₱ doz $5.00@7.75, 40&5%
Stillman's Imita ..₱ doz $3.25@5.25, 40&5&10%
Common Lever ..₱ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00, 40&10@50%
Leach's ..No. 0, $8.00; No. 1, $15, 15@20%
Nash's ..... 20&10@20&10&10%
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. ..... 30&5%
Bemis & Call Co.'s Lever and Spring Hammer ..... 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine ..... $13.00, 50&10%
Aiken's Imitation ..... $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star 25%
Leopold ..... 40&10&50%
Atkin's Lever ..₱ doz No. 1, $6.00
Atkin's Criterion ..₱ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 ..... 40&10%
Avery's Saw Set and Punch 50%
Chieftain H. R. Co.'s Superior ..... ₱ doz $15, 50%

Sharpeners, Knife.

Parkin s.
Applewood Handles ..₱ doz $6.00, 40%
Rosewood or Cocobolo. ₱ doz $9.00, 40%

Shaves, Spoke.

Iron 45%
Wood 30%
Bailey's (Stanley R. & L. Co.) ..... 40&10%
Stearns' ..... 30&10%
Cincinnati ..... 25&10%

Shears—

American (Cast) Iron ..75&10@75&10&5%
Barnard's Lamp Trimmers ..₱ doz $3.75
Tinners' ..... 20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears 33⅓%
First quality C. S. Trimmers. .80@80&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears ..... 10&10%
Diamond Cast Shears 10%
Clipper ..... 10&10%
Victor Cast Shears ..... 75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Chicago Drop Forge & F. Co., Solid Steel Forged 60%
Clauss Shear Co., Japanned 70%
Clauss Shear Co., Nickeled, same list. 60%
Electric ..... List net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw ..₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools 40%
Pruning Shears, Henry's Pat, ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co 60%

Tinners', &c.—

Shears and Snips (P. S. & W.) ..... 20&25%
Snips, J. Mallinson & Co 33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1888 ..50&10@60&5%
R. & E., list Dec. 15, 1885 ..... 55&20%
Corbin's list ..... 60&10&2%
Patent Roller ..... 60&10&2%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec. 18, 1885 ..... 60&2%
Moore's Anti-Friction 50%

Sliding Shutter—

R. & E. list Dec. 18, 1885 ..... 60&10&2%
Sargent's list ..... 60&10%
Reading list ..... 60&10&10%

Ship Tools—

L. & I. J. White ..... 20&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phœnix, at factory. $4.00

Mule—

Add $1 ₱ keg to above prices.

Ox, Wrought—

Ton lots ..₱ ℔ 9¢
1000 ℔ lots ..₱ ℔ 9½¢
500 ℔ lots ..₱ ℔ 10¢

Shot—

(Eastern prices 2¢ off, cash, 5 days.

Drop, ₱ bag, 25 ℔ $1.36
Drop, ₱ bag, 5 ℔ ..... .32
Buck and Chilled, ₱ 25-℔ bag 1.61
Buck and Chilled, ₱ 5-℔ bag ..... .37
(See Trade Report.)

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885 ..... 20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron ..... 50&10%
Griffith's C. S. ..... 60@60&10%
Griffith's Solid C. S. R. R. Goods 20%
St. Louis Shovel Co ..... 20@20&7½%
Hussey, Binns & Co ..... 15@25%
Hubbard & Co ..... 20@20&7½%
Lehigh Mfg. Co ..... 50&10%
Payne Pettebone & Son ..... 33⅓&5%
Remington's (Lowman's Pat.) ..₱ ℔ 10@40%
Rowland's, Black Iron ..... 50&10%
Rowland's Steel ..... 60&5@60&10%

Shovels and Tongs—

Iron Head ..... 60&10@60&10&5%
Brass Head ..... 60&10&10%

Sieves—

Mann's Tin Rim ..... 50&25%
Buffalo Metallic, S. S. & Co ..... 50&25%
Shaker (Barler's Pat.) Flour Sifters .... ₱ doz $2.00; ₱ gr $21.60
Electric ..... ₱ gr $21.00
A. & W. Sifters ..... ₱ doz $2.00
Hunter's ..... ₱ doz $2.00
Smith's Adjustable Sifters ..₱ doz $2.00
Smith's Adjustable Milk Strainer. ₱ doz $2.00
Smith's Adjustable T. & C Strainer. ₱ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₱ doz..	80¢	$1.00
Mesh 20, Nested, ₱ doz..	95¢	1.10
Mesh 24, Nested, ₱ doz..	$1.15	1.25

Skeins, Thimble—

Western list ..... 75&5@75&10%
Columbus Wrt. Steel. Special net prices
Coldbrookdale Iron Co 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 35%

Slates—

School, by case ..... 50&10@50&10&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.) 65%
Fitch's (Bristol) ..... 60&10%
Hotchkiss 10%
Andrews 50%
Sargent's Patent Guarded ..... 70&10&10%
German, new list ..... 40&10%
Covert ..... 50&2%
Covert, New Patent ..... 50&5&2%
Covert, New R. E ..... 60&2%
Covered Spring ..... 60&10&10%

Snaths, Scythe.

List ..... 50&10@50&10&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8¼-inch, ₱ doz., No. 5, $8; No. 5X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list. ..70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list ..... 70&10%
Buffalo S. S. & Co ..... 33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers ..... 40&15%
C. Rogers & Bros ..... 40&15%
Rogers & Bro ..... 40&15%
Reed & Barton ..... 40@40&5%
Wm. Rogers Mfg. Co ..... 40, 15&5%
Simpson, Hall, Miller & Co ..... 40, 15&5%
Holmes & Edwards Silver Co ..40, 15&5%
L. Boardman & Son ..... 50&12½%

Miscellaneous.

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver ..... 50&10&5%
No. 30 Silver Metal ..... 50&10&5%
No. 24 German Silver ..... 50&10&5%
No. 50 Nickel Silver ..... 50&5%
No. 49 Nickel Silver ..... 50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal ..... 50, 10&5%
18% Rogers' German Silver ..... 60&5%
22% Rogers' Nickel Silver. ..... 50&5%
German Silver ..... 50&50&5
German Silver, Hall & Elton ..50&5% cash
Nickel Silver ..... 50&5&50&10&5% cash
Britannia 60%
Boardman's N'ck'l Silver. 40&7½&5% cash
Boardman's Britannia Spoons, case lots ..... 50&12½&5% cash

Springs—

Door.—

Torrey's Rod, regular size ..₱ doz $1.80
Gray's, ₱ gr., $20.00 ..... 20%
Bee Rod ₱ gr., $20.00 ..... 30%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30 ..... 40&10@50%
Gem (Coil), list April 19, 1886 ..... 10%
Star (Coil), list April 19, 1886 ..... 20%
Victor (Coil) ..... 60@60&10%
Champion (Coil) ..... 60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75.. 5
Cowell's ..No. 1, ₱ doz, $18.00; No. 2, $15.00 ..... 50%
Rubber, complete, ₱ doz, $4.50 ..55&10%
Hercules 50%
Shaw Door Check and Spring. 25@30@35%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll ..... 60&10&10%
Cliff's Bolster Springs 25%

Squares—

Steel and Iron, Nickel-Plated ..... 80 &10%
Try Square and T Bevels ..60&10@60&10 &10%
Disston's Try Square and T Bevels 50%
Winterbottom's Try and Miter ..... 30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares 40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—

Blair's ..₱ doz $2.00
Blair's "Climax" ..₱ doz $1.25

Lemon—

Porcelain Lined, No. 1 ..₱ doz $6.00, 25&30%
Wood, No. 2 ..₱ doz $3.00, 35%
Wood, Common ..₱ doz $1.70@1.75
Dunlap's Improved ..₱ doz $3.75, 20%
Sammis ..No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz ..... 25&10%
Jennings' Star ..₱ doz $2.50
The Boss ..₱ doz $2.50
Dean's ..Nos. 1, ₱ doz $6.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant ..... 50@50&5%
King ..... 40&5%
Hotchkiss Straight Flash ..₱ doz $12.00
Silver & Co., Glass ..₱ gro. $9.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger ..₱ ℔ 7@7½¢
Barbed, ⅝ in ..₱ ℔ 8@8½¢
Fence Staples, Galvanized, } Same price
Fence Staples, Plain ..... } as B'rb Wire, See Trd. Rep.

Steelyards ..... 40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods ..... 40@40&10%
Butterfield's Goods ..... 40@40&10%
Lightning Screw Plate ..... 25@30%
Reece's New Screw Plates ..33⅓&5@40%
Reversible Ratchet 30%
Gardner 25%

Stops, Bench.

Morrill's ..₱ doz $9, 50%
Hotchkiss's ..₱ doz $5. 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's ..₱ doz $3 ..... 10%
Cincinnati ..... 25&10%

Stone—

Hindostan No. 1, 3¢; Axe, 3½¢; Slips No. 1, 4½¢
Sand Stone ..₱ ℔ 2½¢
Washita Stone, Extra ..₱ ℔ 20@21¢
Washita Stone, No. 1 ..₱ ℔ 15@16¢
Washita Stone, No. 2 ..₱ ℔ 11@12¢
Washita Slips, No. 1, Extra ..₱ ℔ 37@40¢
Washita Slips, No. 1 ..₱ ℔ 25@26¢
Arkansas Stone, No. 1, 4 to 6 in ..₱ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in ..₱ ℔ $1.85
Turkey Oil Stone, 4 to 8 in ..₱ ℔ 40¢
Turkey Slips ..₱ ℔ $1.00@1.50
Lake Superior, Chase ..₱ ℔ 16¢
Lake Superior Slips, Chase ..₱ ℔ 31@32¢
Seneca Stone, Red Paper Brand ..₱ ℔ 18@20¢
Seneca Stone, High Rounds ..₱ ℔ 20@25¢
Seneca Stone, Small Whets ..₱ gro $24.00

Stove Polish—See Polish, Stove.

Stretchers, Carpet.

Cast Steel, Polished ..₱ doz $2.25
Cast Iron, Steel Points ..₱ doz 80¢
Socket ..₱ doz $1.75
Juliard's ..... 25@25&10%

Strops, Razor—

Genuine Emerson ..... 60@60&5%
Imitation " ..₱ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ..₱ doz $2.00
Lamont Combination ..₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89 .50%
Electric ..... List net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₱ doz $20, 50&50&5%
Perry ..₱ doz, No. 1, $15.00; No. 0, $21.00 ..... 50&5&50&10%
Draw Cut No. 4, each $30.00 ..... 20%
Enterprise Mfg. Co ..... 20&10&30%
Silver's ..... 40&10%

Sweepers, Carpet.

Bissell No. 5 ..₱ doz $17.00
Bissell No. 7 New Drop Pan. ..₱ doz $19.00
Bissell, Grand ..₱ doz $36.00
Grand Rapids ..₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic ..₱ doz $15.00
Jewel ..₱ doz $17.00
Improved Parlor Queen,
Nickeled ..₱ doz $27.00
Japanned ..₱ doz $24.00
Excelsior ..₱ doz $22.00
Garland ..₱ doz $18.00
Parlor Queen ..₱ doz $24.00
Housewife's Delight ..₱ doz $15.00
Queen ..₱ doz $16.00
Queen, with band ..₱ doz $18.00
King ..₱ doz $30.00
Weed, Improved ..₱ doz $18.00
Hub ..₱ doz $16.00
Cog-Wheel ..₱ doz $16.00
Conqueror ..₱ doz $22.00
Easy ..₱ doz $22.00
Monarch ..₱ doz $22.00
Goshen ..₱ doz $21.00

Tacks, Brads, &c.—

List Oct. 19, 1889. Standard Weights.

Carpet Tacks—
American Iron, Blued 77½%
Am'ican Iron, Tin'd or Cop'd. 77½%
Steel, Plain or Bright 75%
Steel, Tinned or Coppered 75%
Swedes Iron, Blued 75%
Swedes Iron, Tinned or Cop'd 75%
American Iron Cut Tacks 75%
Swedes Ir. Uphol'rs' Tacks, Blued. 75%
Swedes Iron Upholsterers' Tacks, Tinned 77½%
Gimp and Lace Tacks, Blued 75%
Gimp and Lace Tacks, Tinned. 77½%
Swedes Iron Basket or Trimmers' Tacks ..... 70&10%
Miners' Tacks 77½%
Bill-Posters' or Railroad Tacks. 75%
Bill-Posters' or Railroad Tacks, Tinned 77½%
Copper Tacks 40%
Copper Finish. & Trunk Nails 40%
Cigar Box Nails 60%
Zinc Glaziers' Points 50%
Picture-Frame Points 50%
Looking-Glass Tacks 50%
Brush Tacks 60%
Tin-Capped Trunk Nails 60%
Finishing Nails 70%
Trunk and Clout Nails, Black and Tinned 72½%
Common and Patent Brads 70%
Hungarian Nails 70%
Basket and Chair Nails 65%
Leathered Carpet Tacks 40%

Miscellaneous—

Double-Pointed, 120 count ..... 85&10%
Wire Carpet Nails ..... 50&10%
Plymouth Rock Steel Carpet Tacks .25%

Extra 10 @ 10&10 %

Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale— Steel

Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&10&5%

Tire Benders, Upsetters, &c— See Benders and Upsetters, Tire.

Tools.

Coopers'—

Bradley's.....20%
Barton's.....30@20&5%
L. & I. J. White.....30&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....20%

Lumber.

Ring Peavies, "Blue Line"....₩ doz $20.00
Ring Peavies, Common.....₩ doz $18.00
Steel Socket Peavies.....₩ doz $21.00
Mall. Iron Socket Peavies.....₩ doz $19.00
Cant Hooks, "Blue Line".....₩ doz $16.00
Cant Hooks, Common Finish..₩ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ doz $12.00
Hand Spikes....₩ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ doz $18.00

Saw.

Atkins' Perfection.....₩ doz $12.00
Atkins' Excelsior.....₩ doz $6.00
Atkins' Giant.....₩ doz $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—

Game—

Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

Mouse and Rat—

Mouse Wood, Choker, ₩ doz holes, 11@12¢
Mouse, Round Wire.....₩ doz $1.50, 10%
Mouse, Cage, Wire.....₩ doz $2.50, 10%
Mouse, Catch-'em-alive....₩ dz $2.50 15%
Mouse, Bonanza.....₩ doz $0.90@$1.00
Mouse, Delusion.....₩ $1.00@$1.25
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz., 90¢; in full cases, ₩ doz.....75¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Triers—

Butter and cheese.....25%

Trimmers, Spoke.

Bonney's.....₩ doz $10.00, 50%
Stearns'.....30&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ doz. 55&10%
Douglas'.....₩ doz $9.00, 30%
Cincinnati.....25%

Trowels—

Lothrop's Brick and Plastering. 20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering.....25%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—

See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	26¢	34¢
No. 12, ¼ and ⅛ ℔ Balls	25¢	33¢
No. 18, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 24, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 36, ¼ and ⅛ ℔ Balls	20¢	31¢

No. 264, Mattrass, ¼ and ⅛ ℔ Balls.52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15½¢
2-Ply Hemp, 1 ℔ Balls.....16¢@16½¢
3-Ply Hemp, 1½ ℔ Balls.....15¢@15½¢
Cotton Wrapping, 5 Balls to ℔ ..15¢@16¢
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls.....10¢
Wool.....6½¢@6½¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—

Solid Box.....50&10@50&10&5%

Parallel—

Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40@5@40&10%
Merrill's.....15@20%
Sargent's.....60@10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33½&10@33½&10&10%
Stearn's Silent Saw Vises.....33½@35%
Sargent's.....66⅔&10%
Hopkins'.....₩ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%

Miscellaneous.

Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.

Cast Iron, Hollow—

Stove Hollow-Ware—
Ground.....55&5@60&5%
Unground.....65&10@65&10&5%
White Enameled-Ware—
Maslin Kettles.....60&10&5%
Boilers and Saucepans.....40%
Tinned Boilers and Saucepans.....40%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%

Enameled—

Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%

Kettles—

Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.	$2.00	$2.25
Wash-Basins, 12 in.	2.25	2.75
Keelers, 11½ in.		4.00
Cuspidors.		5.00
Spittoons, "Daisy," 8 in.	4.00	4.50
Peck Measure.	4.00	
Half-peck Measure.	3.50	

See also Pails.

Indurated Fiber—25%

Spittoons, No. 2, ₩ doz.....$9.00
Basins, Ringed, ₩ doz., No. 2, $4.80; No. 3.....$4.20
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$2.25
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set.....$3.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₩ set.....$3 00
See also *Pails.*

Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.

Reed & Barton..... } 40&5%
Meriden Britannia Co..... }
Simpson, Hall, Miller & Co..... }
Rogers & Brother..... }
Hartford Silver Plate Co..... } 40&5&5%
William Rogers Mfg. Co..... }

Washers—

Size hole	5-16	⅜	½	⅝ to 1⅜
Washers	6	5	2.9	2.65¢

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—

Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 4 ¢

Weights, Sash—

Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.

8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire and Wire Goods—

Iron—

Market.
Br. & Ann., Nos. 0 to 18.....75%
Cop'd, Nos. 0 to 18.....72½%
Galv., Nos. 0 to 18.....65%
Tin'd, Tinned list Nos. 0 to 18.....65%
Stone,
Br. and Ann'd, Nos. 16 to 18.....75%
Bright and Ann'd, Nos. 19 to 26....77½%
Br. and Ann'd, Nos. 27 to 36.....80%
Tinned.....
Tinned Broom Wire, 18 to 21, ₩ ℔...5½¢
Galvanized Fence, Nos. 8 and 9....67½%
Annealed Fence, Nos. 8 and 9.....77½%
Annealed Grape, Nos. 10 to 14.....77½%
Brass, list Jan. 18, 1884.....25%
Copper, list Jan. 18, 1884.....25%
Barb Fence.....See Trade Report
Annealed Wire on Spools.....50%
Malin's Steel and Tin'd on Spools.....50%
Malin's Brass and Cop. on Spools.....40%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$4.00 ₩ ℔, 30%
Steel Music Wire, 12 to 30...60@70¢ ₩ ℔
Wire Clothes Lines, see Lines.
Wire Picture Cord, see cord.

Bright Wire Goods—

Standard list.....85%

Wire Cloth and Netting.

Painted Screen Cloth, good quality, ₩ 100 sq. ft., $1.40 @ $1.45
Galvanized Wire Netting.....70&10@75%

Wire Rope—See Rope, Wire.

Wrenches—

American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....50&2%
Coes' "Mechanics'".....50&10&2%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard....70&10%
P. S. & W. Agricultural.... } 75&5 @ 75
Girard Agricultural..... } &10
Lamson & Sessions' Agric'l.. }
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Briggs's Pattern.....35%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Hercules.....70%
Walker's.....55&2%
Diamond Steel.....55&2%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&2%

Wringers, Clothes—

List September 20, 1890, 2% cash.

Wrought Goods—

Staples, Hooks, &c., list Jan. 12, 1888. 80&15@35%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	58	@	62
Linseed, City, boiled.....	61	@	65
Linseed, Western, raw.....	52	@	54
Lard, City, Extra Winter..	52	@	53
Lard, City, Prime.....	48	@	49
Lard, City, Extra No. 1....	45	@	46
Lard, City, No. 1.....	42	@	43
Lard, Western, prime.....	..	@	48
Cotton-seed, Crude, prime.	23	@	25
Cotton-seed, Crude, off grades.....	18	@	22
Cotton-seed, Summer Yellow, prime.....	..	@	33
Cottonseed, Summer Yellow, off grades.....	27½@		30
Sperm, Crude.....	70	@	71
Sperm, Natural Spring.....	69	@	71
Sperm, Bleached Spring....	74	@	76
Sperm, Natural Winter.....	75	@	77
Sperm, Bleached Winter...	80	@	82
Whale, Crude.....	..	@	..
Whale, Natural Winter.....	..	@	53
Whale, Bleached Winter....	..	@	55
Whale, Extra Bleached.....	..	@	58
Sea Elephant, Bleached Winter.....	..	@	62
Menhaden, Crude, Sound...	23	@	25
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed..	26	@	27
Menhaden, Bleached W'ter.	31	@	32
Menhaden, Extra Bleached	35	@	..
Tallow, City, prime.....	..	@	44
Tallow, Western, prime....	..	@	..
Cocoanut, Ceylon.....	7¾@		8
Cocoanut, Cochin.....	..	@	8¼
Cod, Domestic.....	31	@	32
Cod, Foreign.....	33	@	34
Red Elaine.....	31	@	34
Red Saponified..... ₩ ℔	4½@		4¾
Bank.....per gal	24	@	..
Straits.....	25	@	..
Olive, Italian, bbls.....	68	@	72
Neatafoot, prime.....	62½@		75
Palm, prime, Lagos....₩ ℔	6½@		6¾

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	8½@		9
Black, 29 gravity, 15 cold test.....	9	@	9½
Black, 29 gravity, summer.	7	@	8
Cylinder, light, filtered....	15	@	20
Cylinder, dark, filtered	14	@	20
Cylinder, dard, st'm refined	10	@	18
Paraffine, 23½ @ 24 gravity.	12½@		13
Paraffine, 25 gravity.....	11½@		12
Paraffine, 28 gravity.....	10½@		11
Paraffine, red, 21 @ 22 gr'ty	..	@	14½
Paraffine, red, 22½@23 gr'ty	12½@		13

Paints and Colors.

Barytes, Prime White..... ₩ ton.	$21.00	@	22.50
Barytes, Amer. refined...20.00		@	....
Barytes, Amer. No. 1.....18.00		@	....
Barytes, Amer. No. 2.....16.00		@	....
Barytes, Amer., off-color.13.00		@	15.00
Blue, Celestial..... ₩ ℔	6	@	8
Blue, C hinese.....	50	@	55
Blue, Prussian.....	25	@	40
Blue, Ultramarine.....	10	@	30
Brown, Spanish.....	⅛@		1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Black, American Drop....	8	@	10
Black, English Drop.....	12	@	14
Black, Frankfort, Drop...	5	@	18
Black, Lamp, common....	12	@	18
Black, Lamp, medium.....	19	@	25
Black, Lamp, prime.....	27	@	33
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels.....	3.20	@	..
Carmine, No. 40, in ounce bottles.....	4.20	@	..
Chalk, in bulk.... ₩ ton.	2.40	@	2.50
Chalk, in bbls. ₩ 100 ℔.	.30	@	35
China Clay, English.... ₩ ton.	12.00	@	18.00
Cobalt Oxide, prep'd.....	2.90	@	....
Cobalt Oxide, black.. lots 100℔.	2.60	@	....
Cobalt, Oxide, black..... less 100℔.	2.65	@	....
Green, Paris, in bulk.....	14	@	14½
Green, Paris, 170 @ 175 ℔ kegs.....	14½@		15
Green, Paris, small pack.	16	@	21
Green, Chrome, ordinary	8	@	13
Green, Chrome, pure....	22	@	25
Lead, Eng., B.E. white....	9	@	1o
Lead, Amn. White, dry or in oil: Kegs, lots less than 1000 ℔..		@	7¾
Kegs, lots 1000 ℔ to 5 tons.		@	7½
Kegs, lots 5 tons to 12 tons..		@	7⅞
Kegs, lots 12 tons and over..		@	7
Lead, White, in oil, 25 ℔ tin pails, add to keg price.		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....		@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ½ bbls....	6¾	@	7½
Lead, Red, kegs.....	7	@	7¾
Litharge, kegs.....	7	@	7¾
Litharge, bbls. and ½ bbls.....	6¾	@	7½

TERMS, &c.—Lead and Litharge.—On lots of 1000 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed....	1½@		2½
Ocher, German Washed...	1½@		3
Ocher, American.....	½@		1½
Orange Mineral, English..	9	@	9½
Orange Mineral, French....	9½@		10
Orange Mineral, German ..	8½@		9½
Orange Mineral, American.	8	@	8½
Paris White, English Cliff-stone.....	.90	@	1.10
Paris White, American.....	70	@	80
Red, Indian, English.....	5½@		7
Red, Indian, American....	2	@	6
Red, Turkey.....	9	@	14
Red, Tuscan.....	9	@	11
Red, Venetian, American.. ₩ 100 ℔.	1.00	@	1.35
Red, Venetian, Englisa....	1.25	@	1.75
Sienna, Italian, Burnt and Powd.₩ ℔.....	5	@	6½
Sienna, Ital., Burnt Lumps	1½@		3½
Sienna, Ital., Raw, Powd..	5	@	6½
Sienna, Ital., Raw Lumps..	2	@	3½
Sienna, American, Raw....	1½@		1½
Sienna, American, Burnt and Powdered.....	1½@		1½
Talc, French.....	1½@		1½
Talc, American.....	1	@	1½
Terra Alba, Fr'ch. ₩ 100 ℔	72½@		80
Terra Alba, English	80	@	85
Terra Alba, American No.1	70	@	75
Terra Alba, American No.2	38	@	40
Umber, Turkey, Bnt. and Powd.,.. ..... ₩ ℔	3½@		4
Umber, Turkey Bnt.Ln	2½@		3
Umber, Turkey, Raw and Powdered.....	3½@		
Umber Turkey, R'w Lmps	2½@		2¾
Umber, Turkey, Bnt. Amer.	1½@		1¾
Umber, Turkey, R'w Amer.	1½@		1¾
Yellow, Chrome.....	10	@	25
Vermilion, Americ. Lead..	11½@		15
Vermilion, Quicks'er, bulk.	..	@	75
Vermilion, Quicks'er, bags.	..	@	76
Vermilion, Quicksilver, smaller pkgs.....	..	@	80
Vermilion, English Import	82½@		85
Vermilion, Imitation, Eng.	8	@	25
Vermilion, Trieste.....	87½@		90
Vermilion, Chinese.....	90	@	95
Whiting, Common. ₩ 100 ℔	40	@	45
Whiting, Gliders'.....	50	@	55
Zinc, American, dry....₩ ℔	4½@		5
Zinc, French, Red Seal.....	..	@	8¼
Zinc, French, Green Seal..	..	@	8¾
Zinc, French, V. M. X....	..	@	7
Zinc, Antwerp, Red Seal....	..	@	7¼
Zinc, Antwerp, Green Seal	..	@	8¼
Zinc, German, L. Z. O....	..	@	6¾
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10¾@		11¼
lots less than 1 ton.....	11	@	11½
Zinc, V. M. in Poppy Oil, Red Seal,.....	..	@	..
lots of 1 ton and over....	10	@	10½
Lots of less than 1 ton....	10½@		10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese.....₩ ℔	35	@	40
Blue, Prussian.....	29	@	45
Blue, Ultramar.ine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18½
Sienna, Raw.....	7	@	13
Sienna, Burnt.....	7	@	13
Umber Raw.....	7	@	10
Umber, Burnt.....	7	@	10

Spirits Turpentine.

In regular bbls.....	38	@	40¼
In machine bbls.....	38½@		40¾

Glue.

Low Grade.....₩ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	10	@	..
English.....	10	@	15
Irish.....	12	@	15

CURRENT METAL PRICES.

DECEMBER 24, 1890.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron':	
⅜ to 2 in. round and square..	₩ lb 2.00 @ 2.10¢
1 to 6 in. x ⅝ to 1 in.....	
Refined Iron:	
⅜ to 2 in. round and square..	₩ lb 2.10 @ 2.30¢
1 to 4 in. x ⅝ to 1½ in.....	
4½ to 6 in. x ⅝ to 1 in	
1 to 6 in. x ¼ and 5-16	₩ lb 2.30 @ 2.50¢
Rods—⅝ and 11-16 round and sq..	₩ lb 2.20 @ 2.40¢
Bands—1 to 6 x 3-16 to No. 12.....	₩ lb 2.40 @ 2.60¢
"Burden Best" Iron, base price..	₩ lb..... 3.00¢
Burden's "H. B. & S." Iron, base price...	₩ lb..... 2.80¢
"Ulster".....	₩ lb..... 3.00¢
Norway Bars	4.00¢
Norway Shapes	5.00¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.....	2¾¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots.....	5¢

Sheet Iron from Store.

	Common American.	R. G.	Cleaned.
10 to 16.....	₩ lb 3.00 @ 3.00¢	3.35 @ .....¢	
17 to 20.....	₩ lb 3.15 @ 3.25¢	3.35 @ 3.75 ¢	
21 to 24.....	₩ lb 3.35 @ 3.35¢	3.60 @ .....¢	
25 and 26.....	₩ lb 3 35 @	3.60 @ .....¢	
27.....	₩ lb 3.50 @ 3.62½¢	3.85 @ .....¢	
28.....	₩ lb 3.65 @ ... ..¢	4.10 @ .....¢	
	B. B.	2d qual.	
Galv'd, 14 to 20,	₩ lb, 4.75 @ ...	4.60 @ .....¢	
Galv'd, 21 to 24,	₩ lb, 5.12 @ ...	5.00 @ ... ¢	
Galv'd, 25 to 26,	₩ lb, 5.50 @ ...	5.35 @ .....¢	
Galv'd, 27.....	₩ lb, 5 90 @ ...	5.70 @ .....¢	
Galv'd, 28.....	₩ lb, 6.25 @ ...	6.10 @ ..¢	
Patent Planished.....	₩ lb A 10¢	B, 9¢	
Russia.....	₩ lb 10½¢ @ 11¢		
American Cold Rolled B. B.....	₩ lb 5¢ @ 7¢		
Craig Polished Sheet Steel.....	₩ lb, 8½¢		

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast.....	₩ lb 16 ¢
Best Double Shear.....	₩ lb 15 ¢
Blister, 1st quality.....	₩ lb 12 ¢
German Steel, Best.....	₩ lb 10 ¢
2d quality.	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality.....	₩ lb 15 ¢
2d quality.....	₩ lb 14 ¢
3d quality.....	₩ lb 12½¢
R. Mushet's "Special"	₩ lb 48 ¢
" " "Titanic".....	₩ lb 20 ¢

METALS.

Tin.

	Per lb
Banca, Pigs.....	23 ¢
Straits, Pigs.....	.22½¢
Straits in Bars	.25 ¢

Tin Plates.

		Per box.
Charcoal Plates.—Bright.		
Melyn Grade.....IC, 10 x 14..	@	$6.50
" " ... .IC, 12 x 12..	@	6.75
" " . .. IC, 14 x 20..	@	6.50
" " .....IC, 20 x 28.. ...	@	13.25
" " ....IX, 10 x 14.. ...	@	8.00
" " ....IX, 12 x 12..	@	8.25
" " ....IX, 14 x 20..	@	8.00
" " .....IX, 20 x 28..	@	16.00
" " .....DC, 12½ x 17.. ..	@	6.00
" " .....DX, 12½ x 17..	@	7.50
Calland Grade.....IC, 10 x 14,.	@	6.50
" " .....IC, 12 x 12..	@	6.75
" " .....IC, 14 x 20.. . .	@	6.40
" " .....IX, 10 x 14.. .. .	@	7.65
" " . .....IX, 12 x 12..	@	7.90
" " .....IX 14 x 20.	@	7.65
Allaway Grade.....IC, 10 x 14.. ...	@	6.00
" " .. ...IC, 12 x 12..	@	6.15
" " .....IC, 14 x 20..	@	6.00
" " .....IC, 20 x 28..	@	11.80
" " .....IX, 10 x 14..	@	7.17
" " . ....IX, 12 x 12..	@	7.30
" " .....IX, 14 x 20..	@	7.15
" " .....IX, 20 x 28..	@	14.25
" " ...DC, 12½ x 17.. ...	@	5.65
" " . .DX, 12½ x 17.. 6.00	@	6.65
Coke Plates.—Bright.		
Steel Coke.—IC, 10 x 14, 14 x 20..	@	$5.60
10 x 20..	@	7.75
20 x 28.. ...	@	11.25
IX, 10 x 14, 14 x 20..	@	6.50
BV Grade.—IC, 10 x 14, 14 x 20.. ...	@	5.60
Charcoal Plates.—Terne.		
Dean Grade.—IC, 14 x 20..	@	$5.40
20 x 28.	@	10.70
IX, 14 x 20.....	@	6.10
20 x 28.....	@	12.10
Abecarne Grade.—IC, 14 x 20...	@	5.10
20 x 28...	@	10.35
IX, 14 x 20....	@	6.10
20 x 28..	@	12.10

Tin Boiler Plates.

IXX, 14 x 20.....112 sheets.....	@ $13.50
IXX, 14 x 28..... 112 sheets....	@ 13.75
IXX, 14 x 31... ....112 sheets	@ 15 25

Copper.

DUTY: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35% ad valorem.

Ingot.

Lake.....	@ 16¼¢
Baltimore Grade....	@ 15 ¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 5, 1890, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	22	22	23	24	25	28	30
30		72	22	22	22	23	25	27	31	..
36	96		22	22	22	24	26	30	33	....
36		96	22	22	24	25	27	31	35	....
48	96		22	22	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	22	27	29	34	....	....	....
60		96	22	23	28	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84		96	24	25	....	....	....	....	....	....
Over 84 in. wide			25	27	....	....	....	....	....	....

All Bath Tub Sheets.....	16 oz.	14 oz.	12 oz.	10 oz.
Per pound.....	$0.27	0.29	0 31	0.35

Bolt Copper, ⅜ inch diameter and over, per pound..... 22¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier.....	26¢
12 ounce and up to 14 ounce to square foot....	27¢
10 ounce and up to 12 ounce.....	29¢
Lighter than 10 ounce.....	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each.....	8¢
Tinning sheets on one side, 30 x 60 each.....	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each.	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each.....	12¢
Tinning sheets on one side, other sizes, per square foot.....	2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

14 x 48, 14 x 52, 14 x 56, 14 x 60 in.

14 and 16 oz. and heavier..38¢. By the case...32¢ ₩ lb
12 oz. and lighter.....35¢. By the case...34¢ ₩ lb

24 x 48 and 20 x 60.

14 and 16 oz. and heavier. 36¢. 12 oz.....39¢ ₩ lb

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1⅛
8-14	6-12	37	33	30	29	28	27	24
15	13	38	33	31	30	29	28	25
16	14	39	34	32	31	30	29	25
17	15	40	35	33	30	31	30	26
18	16	42	36	34	32	31	30	27
19	17	43	37	35	34	33	32	29
20	18-19	44	39	37	36	35	34	31
21	20	46	41	39	38	37	36	34
22	21	48	42	40	39	38	37	36
23	22	50	44	42	41	40	39	39
24	23	53	46	44	43	41	40	41
25	24	56	49	46	45	44	43	45

Copper Bronze and Gilding Tube, 3¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch.....	45¢
Plain, 5-16 inch.....	45¢
Plain, ¼ inch.....	60¢
Plain, 3-16 inch.....	$1.00
Plain, ⅛ inch.....	1.50
Fancy Tubing, Brass, to No. 20, inclusive.....	42¢ ₩ lb
bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list.....	25 @ ... %

Roll and Sheet Brass.

(*Brown & Sharpe Standard Gauge.*)

Common High Brass: Wider than and including	in. 2 10	in. 10 12	in. 12 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24
To No. 20, inclusive...	.21	.22	.23	.25	.27	.29	.31	.33
Nos. 21, 22, 23 and 24.	.22	.23	.24	.26	.28	.30	.32	.34
Nos. 25 and 26.....	.22½	.23½	.24½	.27	.29	.31	.33	.35
Nos. 27 and 28.....	.23	.24	.25	.28	.30	.32	.34	.36

Common High Brass: Wider than and including	in. 24 26	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40
To No. 20, inclusive...	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24.	.37	.40	.43	.47	.51	.56	.61	.66
Nos. 25 and 26.....	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28.....	.39	.42	.45	.49	.53	.58	.65	.76

Brass and Copper Wire.

Old English guage standard.	Com. high brass. Per lb.	Low brass. Per lb.	Gildi'g br'ze & copper Per lb.
All Nos. to No. 16, inclusive....	$0.22	$0 26	$0.30
No. 17 and No. 18.....	.23	.27	.31
No. 19 " " 20.....	.24	.28	.32
No. 21.....	.25	.29	.33
No. 22.....	.26	.30	.34
No. 23.....	.28	.32	.36
No. 24.....	.30	.34	.38
No. 25.....	.32	.36	.40
No. 26.....	.35	.39	.43
No. 27.....	.38	.42	.46
No. 28.....	.42	.46	.51
No. 29.....	.45	.49	.54
No. 30.....	.48	.52	.62
No. 31.....	.51	.55	.67
No. 32.....	.55	.59	.73
No. 33.....	.59	.63	.82
No. 34.....	.64	.68	.95
No. 35.....	.70	.74	1.30
No. 36.....	.76	.80	1.50
No. 37.....	1.00	1.04	1.70
No. 38.....	1.30	1.34	2.00
No. 39.....	2 00	2.00	3.25
No. 40.....	2.60	2.60	5.75

Spring Wire, 2¢ ₩ lb advance.

Copper Belt and Hose Rivets and Burrs.

	Per lb.		Per lb.
No. 5.....	49¢	No. 11.....	56¢
No. 6.....	49¢	No. 12.....	58¢
No. 7.....	49¢	No. 13.....	60¢
No. 8.....	50¢	No. 14.....	65¢
No. 9.....	52¢	No. 15.....	70¢
No. 10.....	54¢		

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb

Western Spelter	6¼ @ 6¾¢
"Bertha"	8¼¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.

600 lb casks.....	7¼¢
Per lb	7¾¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 2½¢ ₩ lb.

American	4½¢ @ 4¾¢
Bar.....	5 ¢
Pipe, subject to trade discount....	7½¢
Tin-Lined Pipe, subject to trade discount....	15¢
Block Tin Pipes, subject to trade discount.....	40¢
Sheet, subject to trade discount.....	8½¢

Solder.

½ @ ½ (Guaranteed)...	16 ¢
No. 1.....	13¢
Extra Wiping	11½¢ @ 14¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....	₩ lb 20½¢
Hallett's.	" 18½¢

ALUMINUM.

Prices in Ingots.

$2.00 ₩ lb in lots of 1000 lb and over.
$2.25 ₩ lb in lots of 500 lb and over.
$2.50 ₩ lb in lots of 100 lb and over.

For prices on Rolled Sheets, Tubing, Casting and Wire, see *The Iron Age*, December 11, 1890, page 1170.

Old Metals.

(*Prices Paid in New York.*)

Heavy Copper.....	₩ lb 12 ¢
Light Copper...	₩ lb 11 ¢
Heavy Brass.....	₩ lb 10 ¢
Light Brass.....	₩ lb 8 ¢
Lead.....	₩ lb 4 ¢
Tea Lead.....	₩ lb 3½¢
Zinc.....	₩ lb 3 ¢
No. 1 Pewter.....	₩ lb 16 ¢
No. 2 Pewter.....	₩ lb 8 ¢
Wrought Scrap Iron.....	₩ gross ton $19.00
Heavy Cast Scrap.....	₩ gross ton 12.00
Stove Plate Scrap.....	₩ gross ton 8.00
Burnt Iron.....	₩ gross ton 6.00

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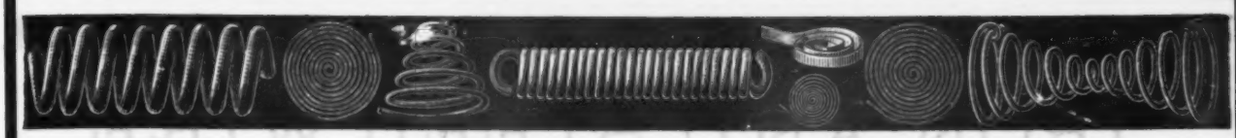


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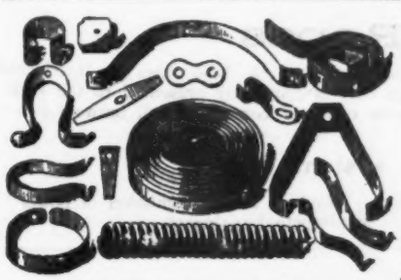
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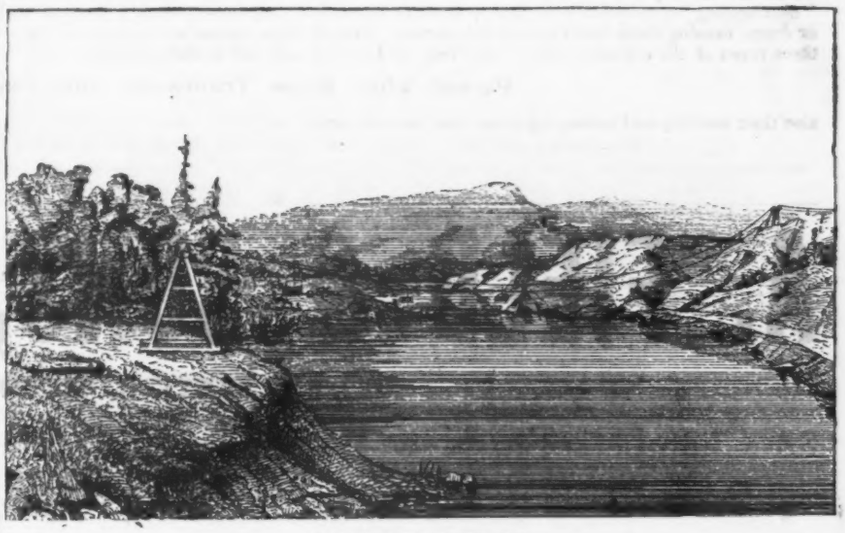
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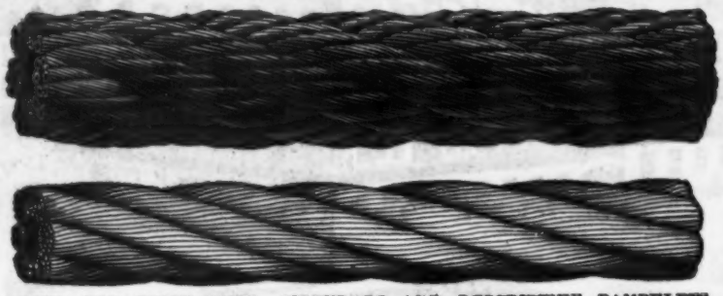
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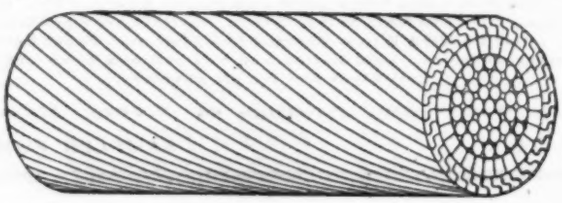
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Chapter III.—Iron and Silicon.
Chapter IV.—Iron and Manganese.
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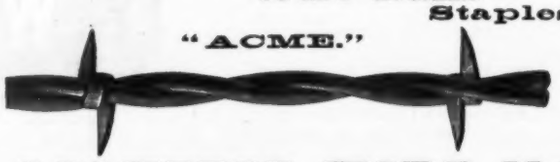
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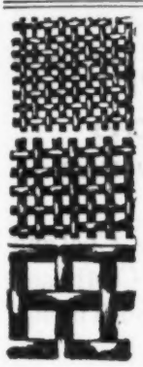
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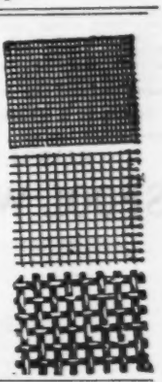
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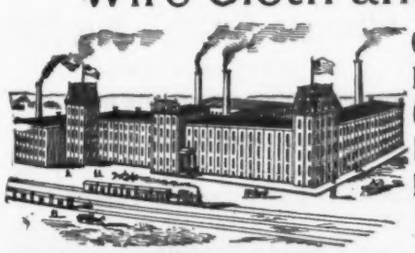
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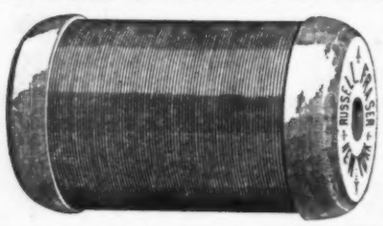
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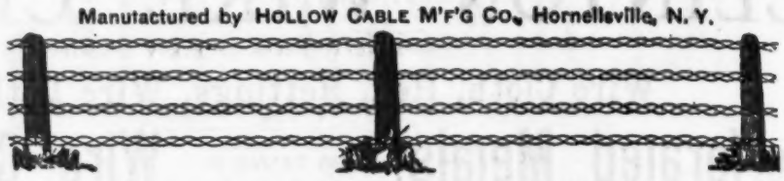
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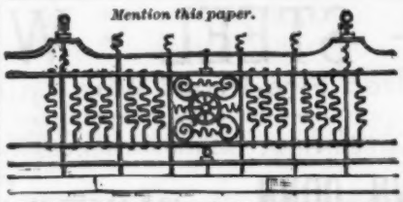


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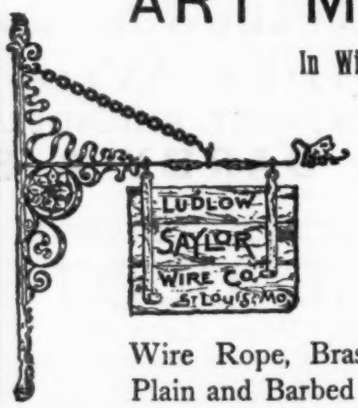


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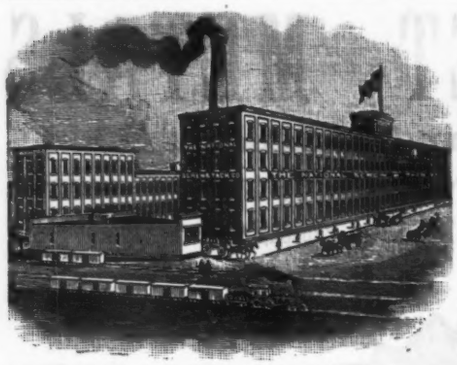
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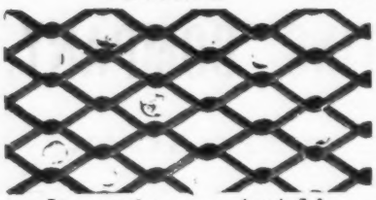
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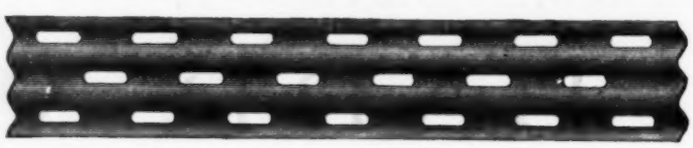
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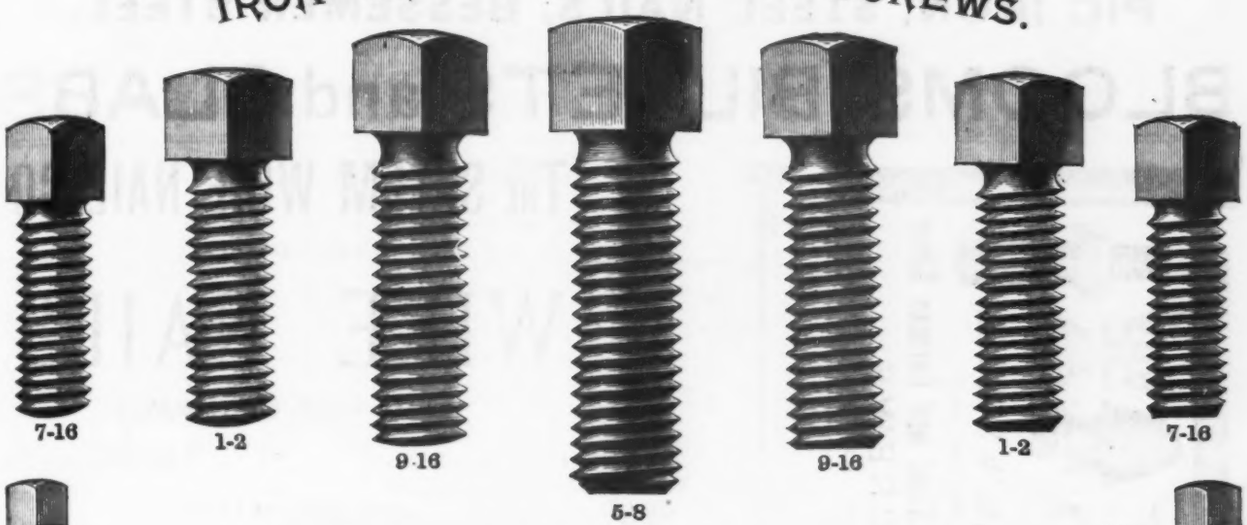
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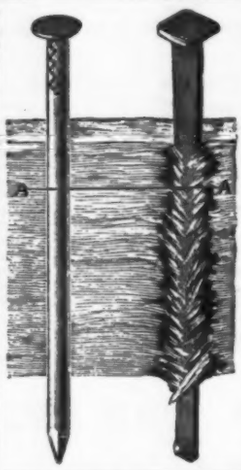
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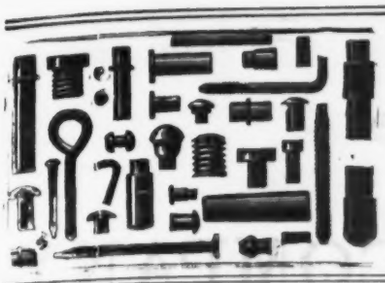
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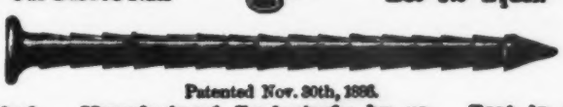
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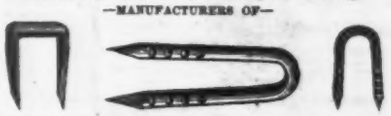
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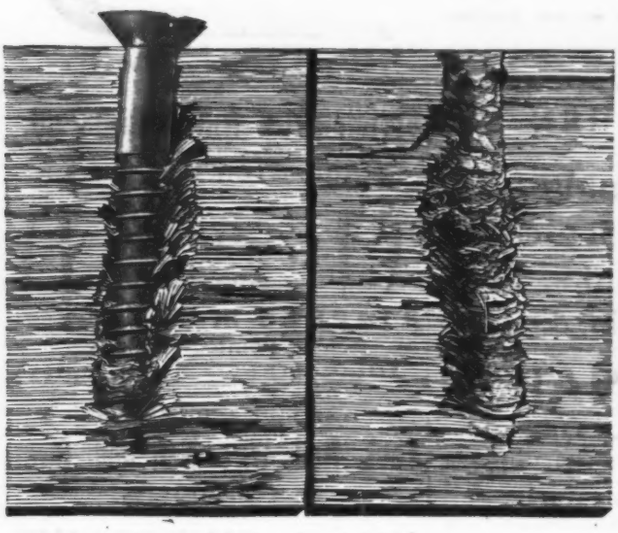
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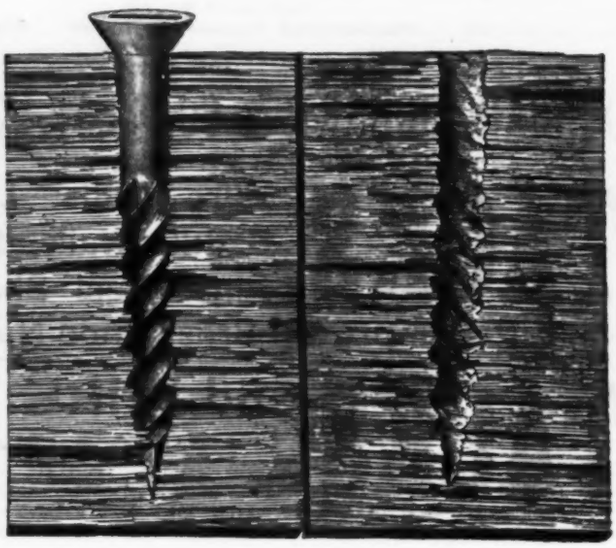
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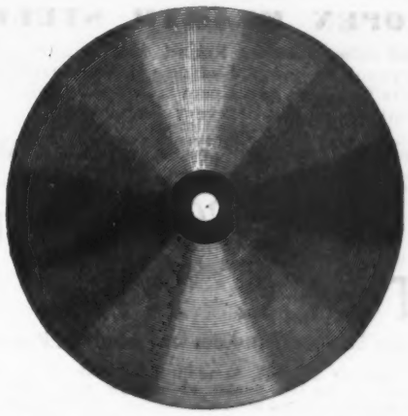
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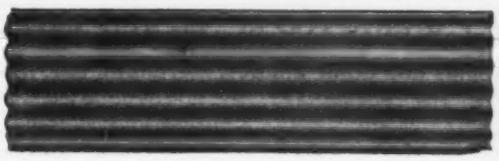
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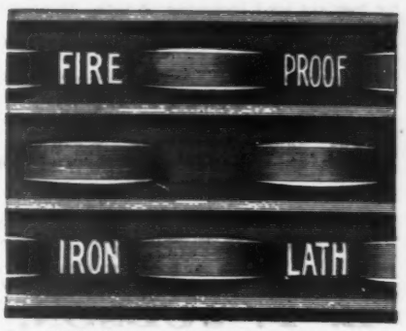
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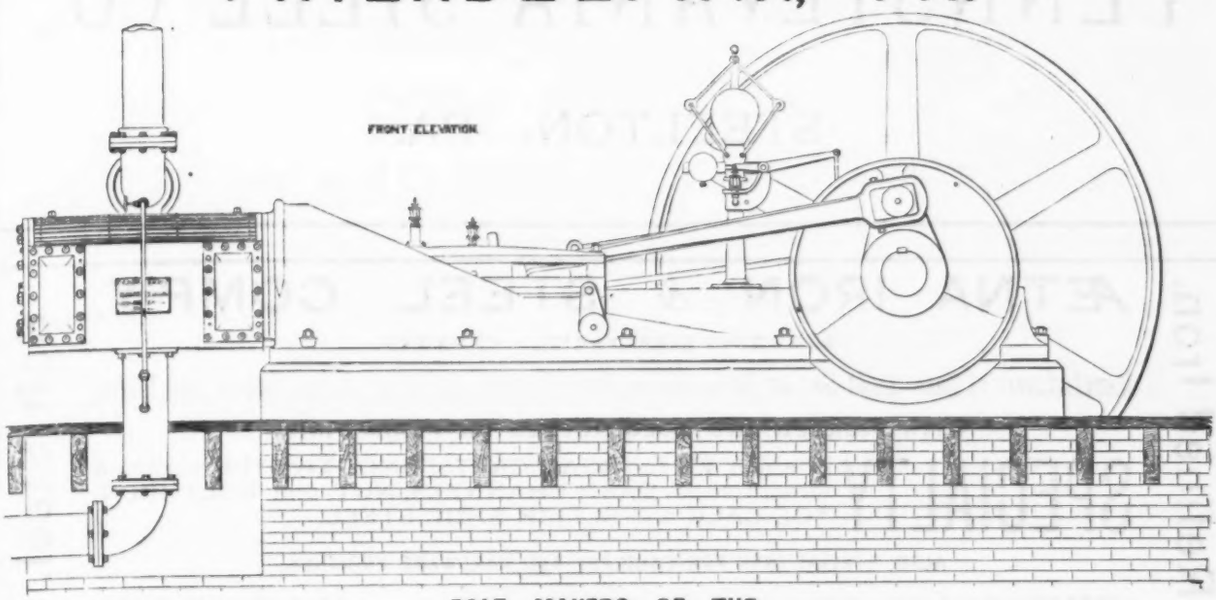
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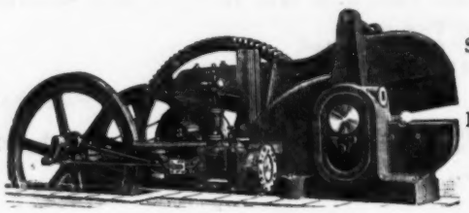
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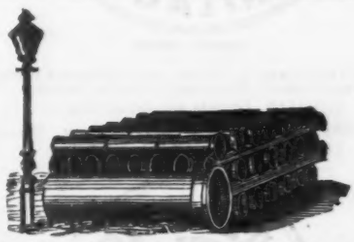
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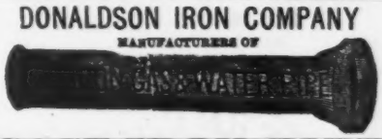
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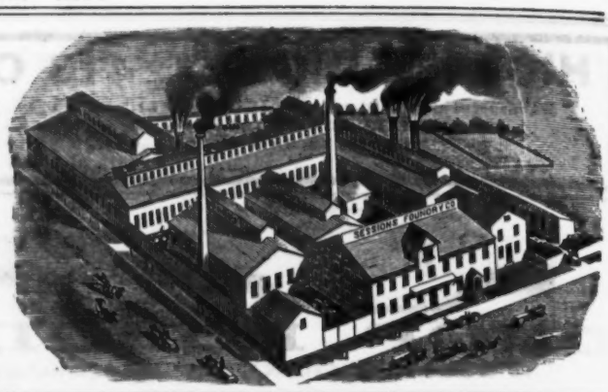
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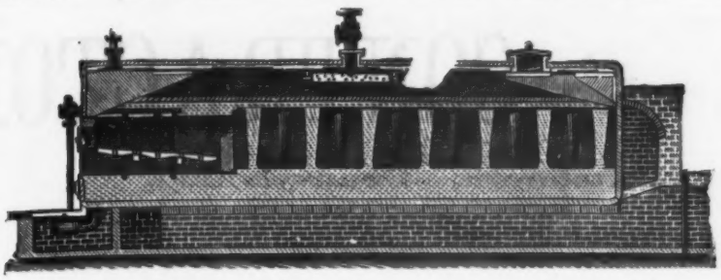
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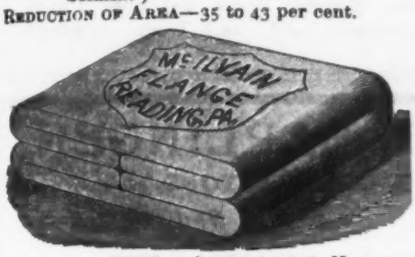
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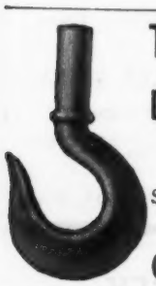
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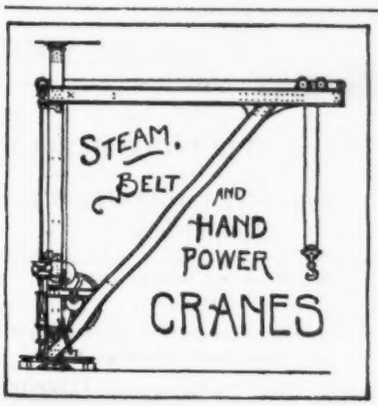
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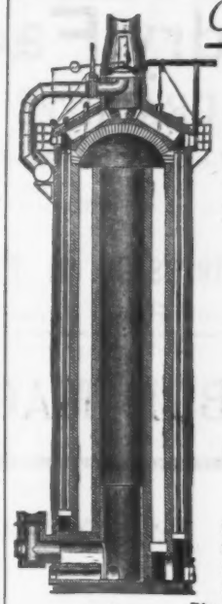
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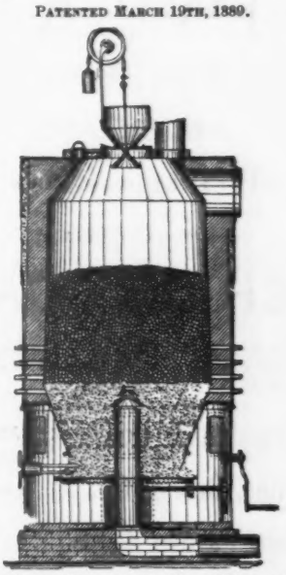
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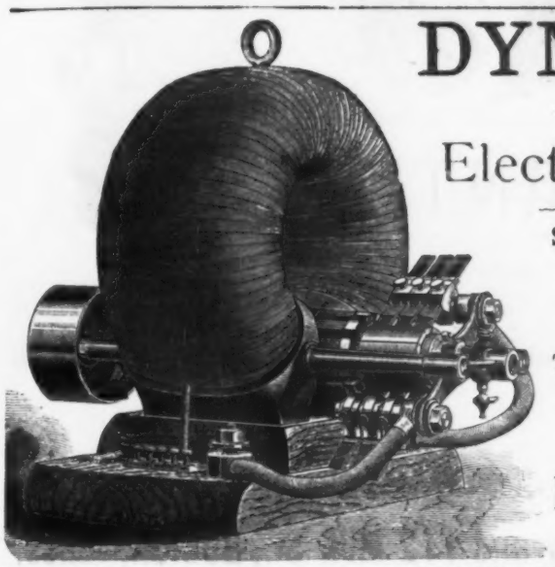
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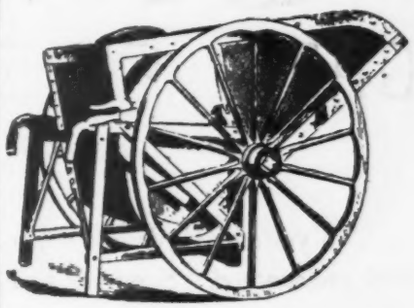
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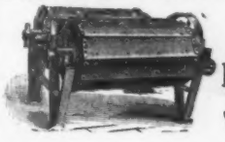
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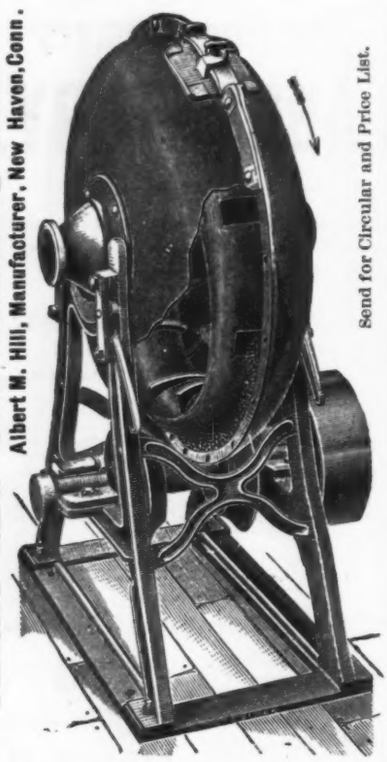
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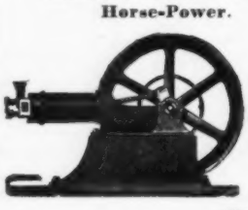


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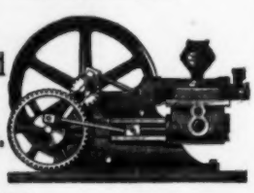


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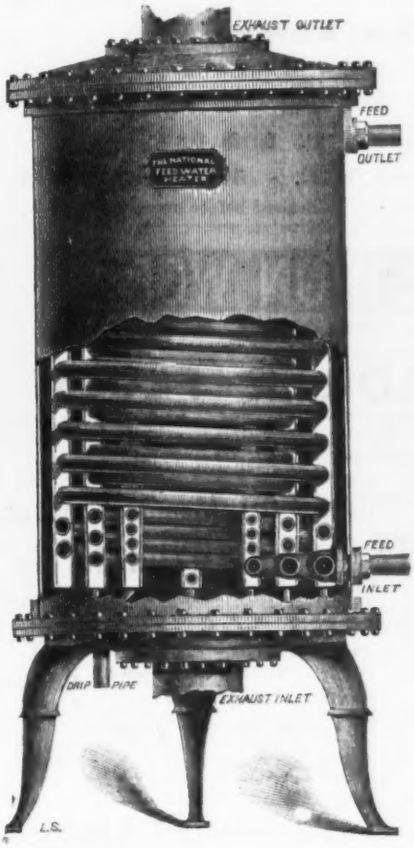
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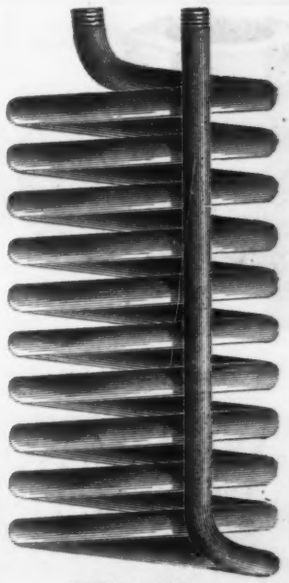
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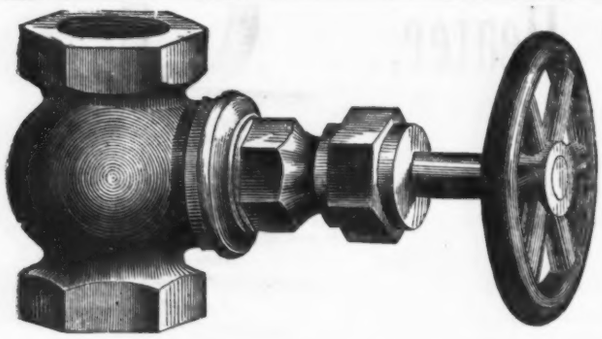
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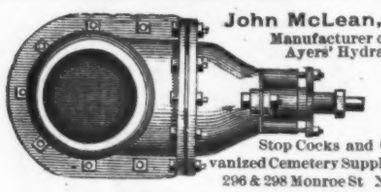
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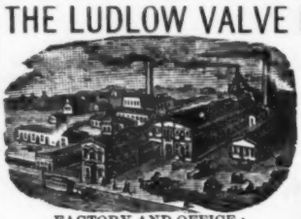
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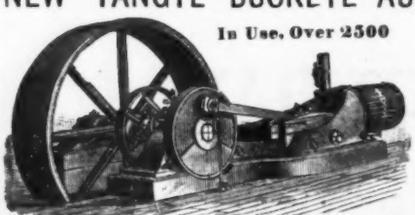
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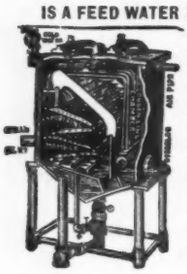
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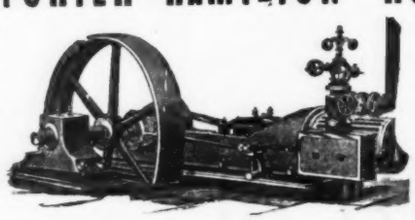
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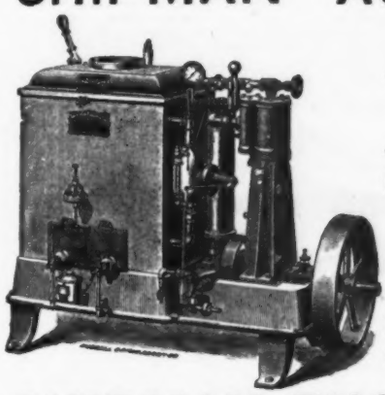
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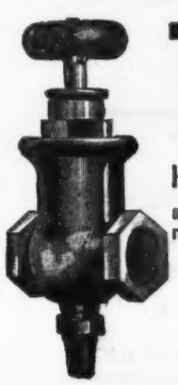
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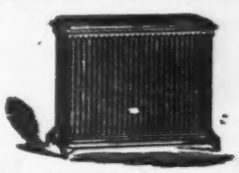
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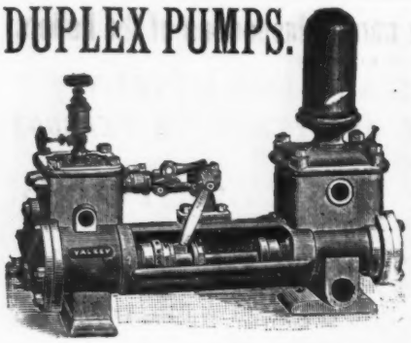
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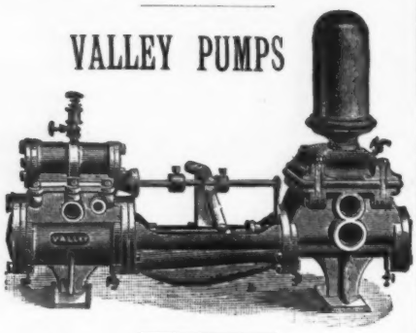
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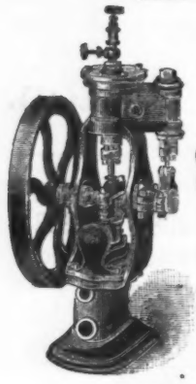
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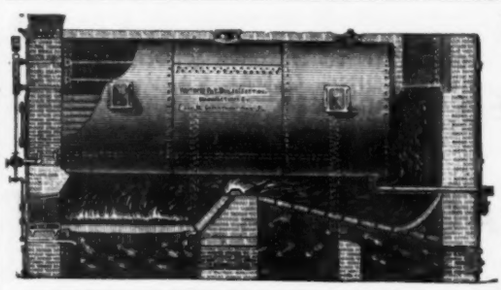
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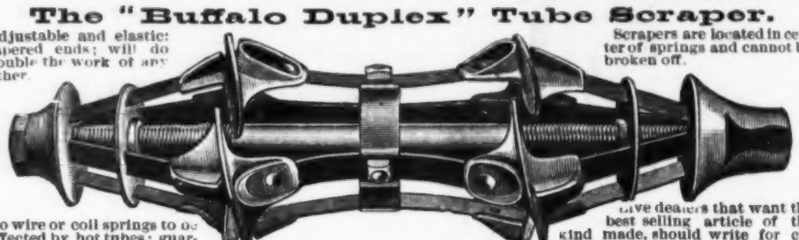
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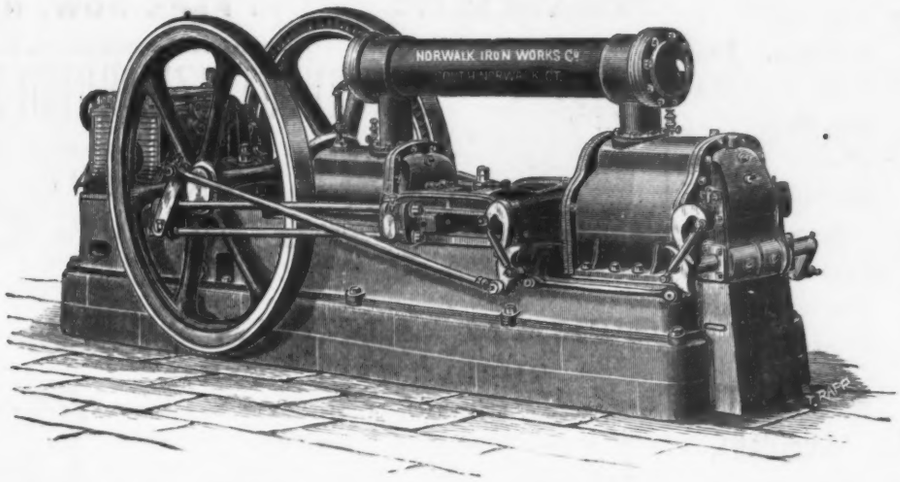
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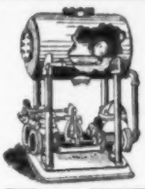
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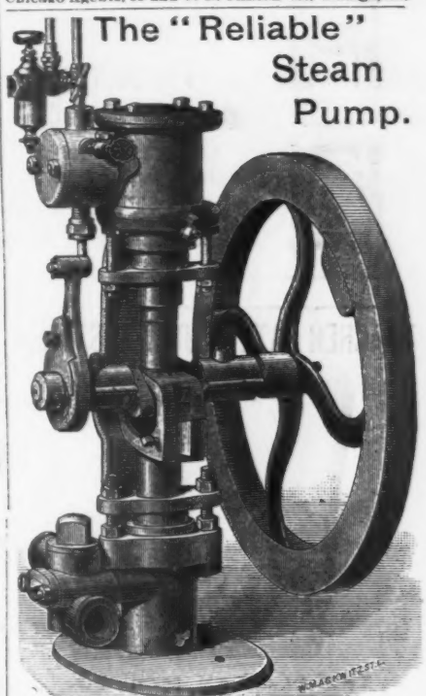
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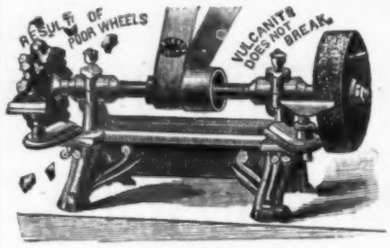
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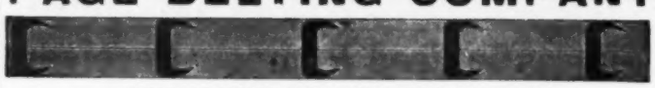
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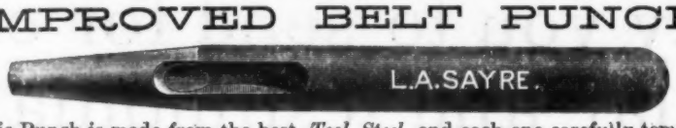
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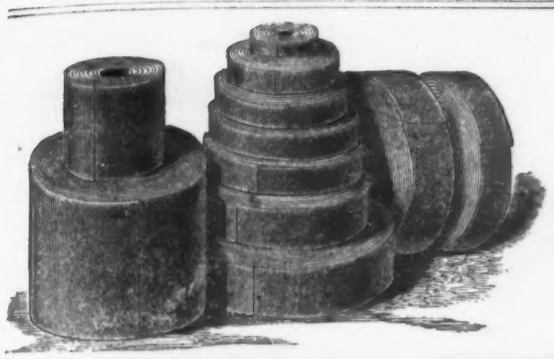
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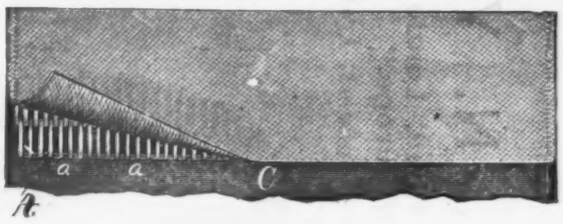
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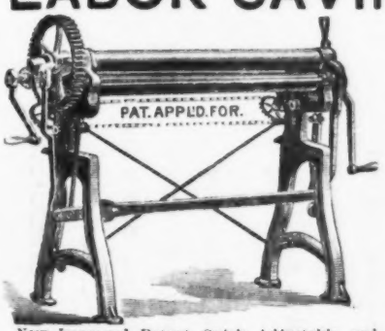
Either single or double ply. Of plain wire or covered with rubber. By government test is more than nine times stronger than Leather of same weight, and is sold cheaper than Leather Belting of same size.

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Two levers, (7) sizes, for light or heavy work. Also Lever Stock Shears and Punches made separate, and Power Punches.

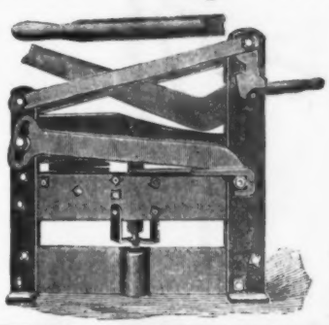
Improved Combined Squaring and Slitting Shears, with 12 in., 15 in. or 18 in. throat, to slit wide sheets as may be desired, and of any length. Complete for tin or iron up to No. 16 or 14 gauge with the Patent Lever Attachment for additional power. Provided with drop leaf tables and trimming gauge. Eight different styles up to 10 ft. in length. Also light and heavy Power Shears.

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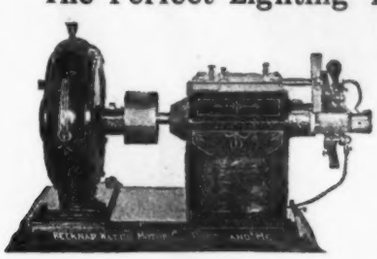
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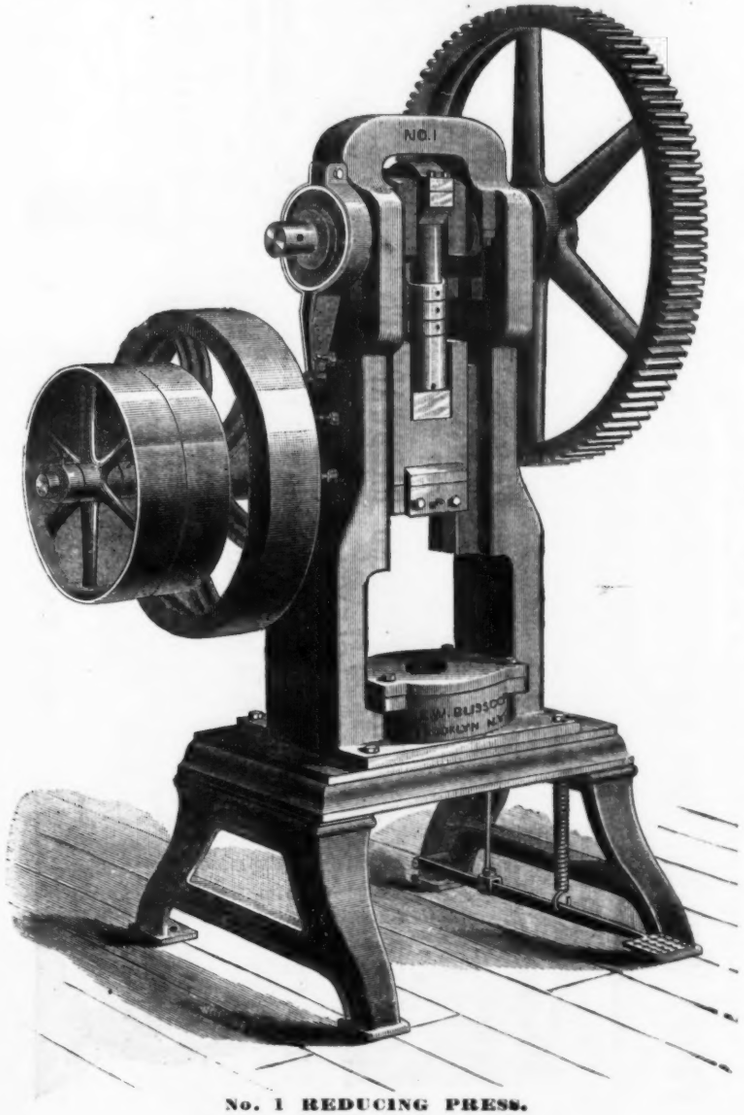


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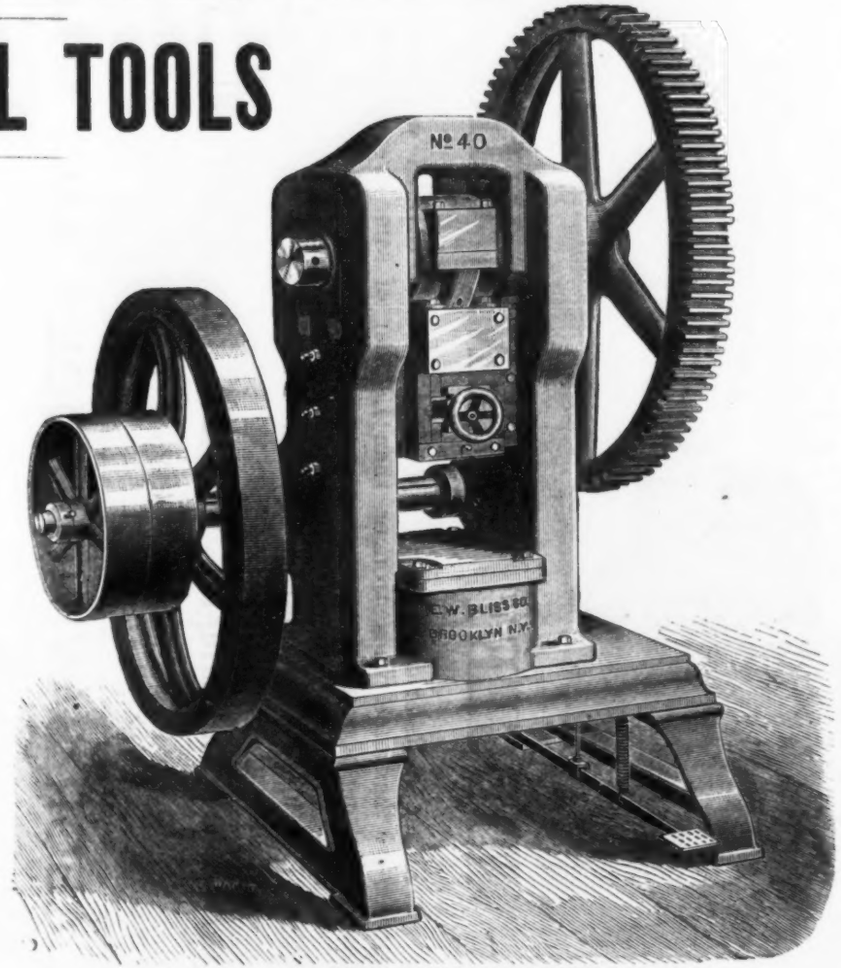
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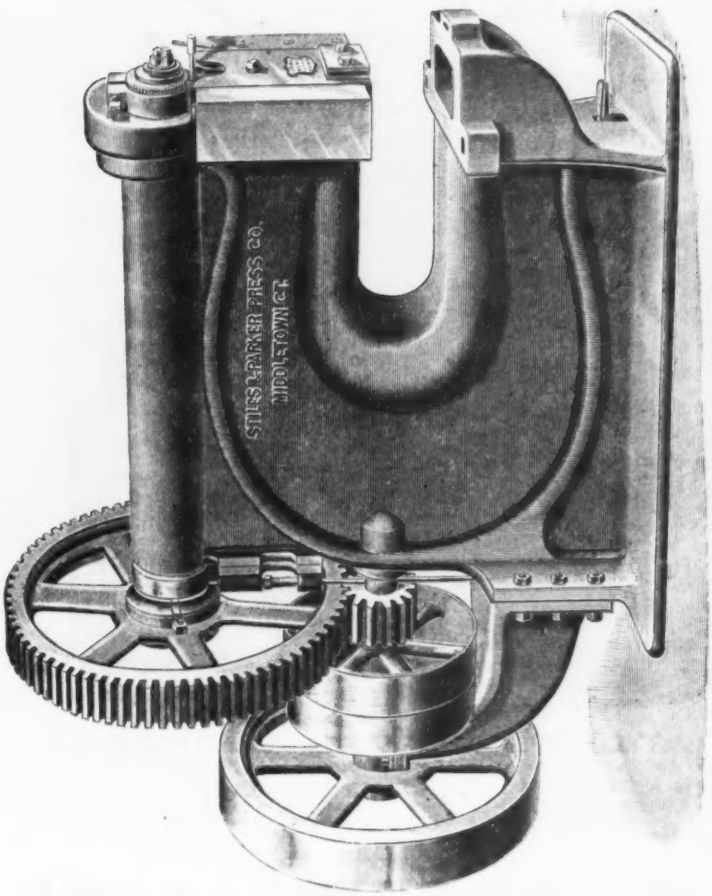
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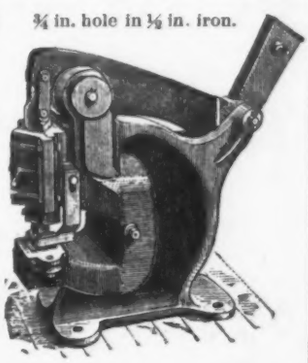
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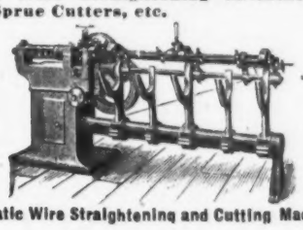


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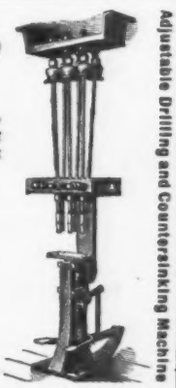
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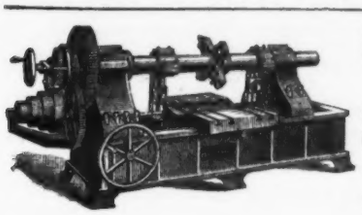
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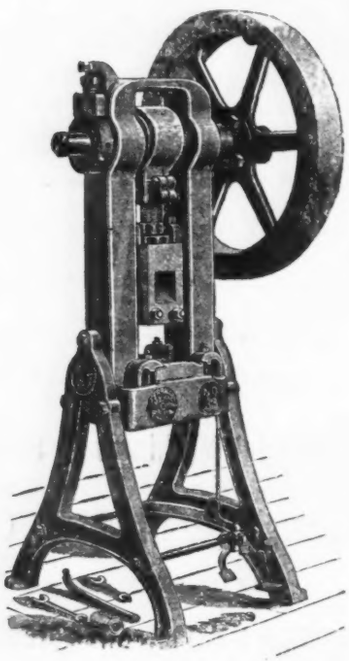
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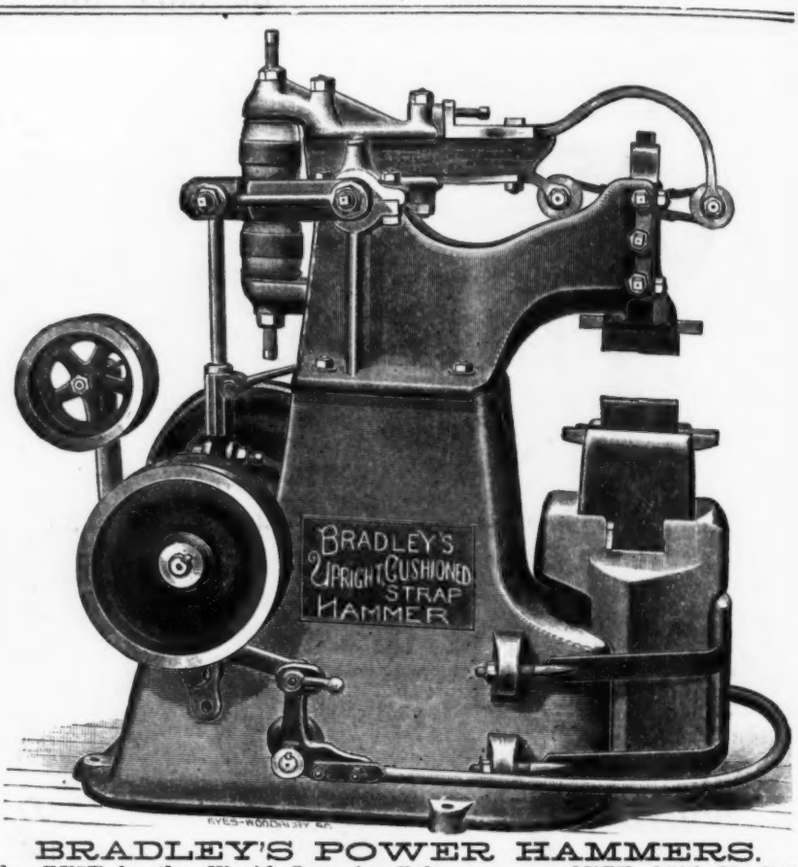
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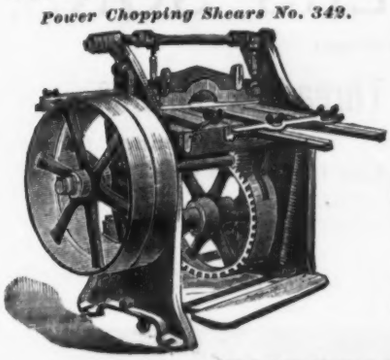
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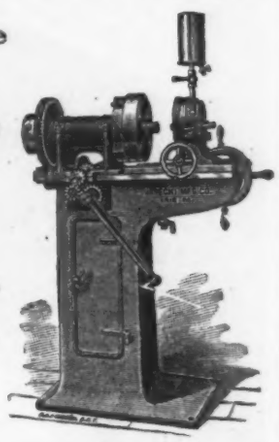
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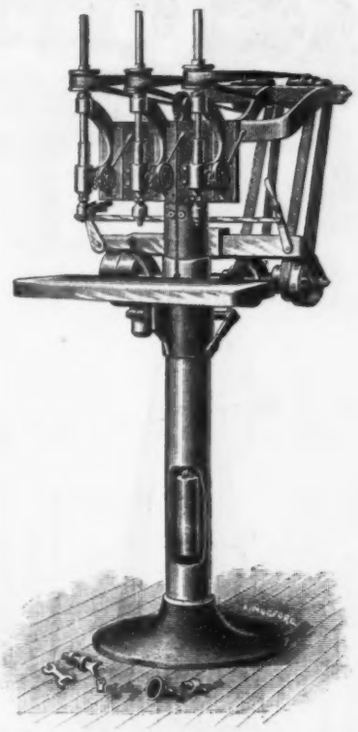
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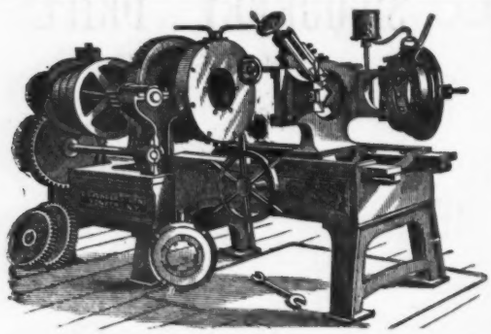


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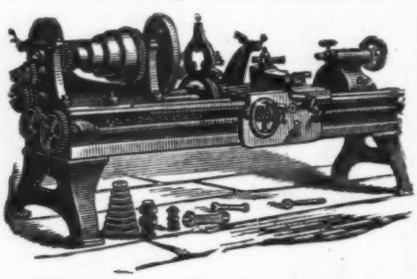
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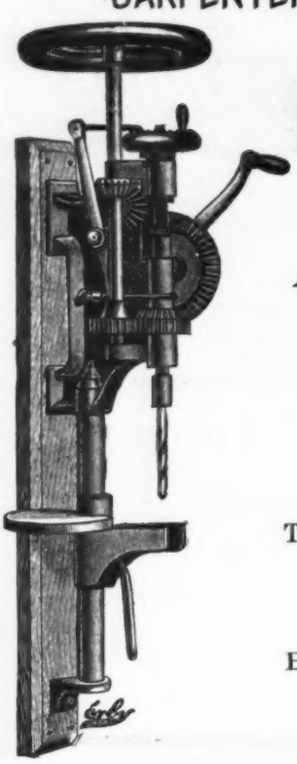
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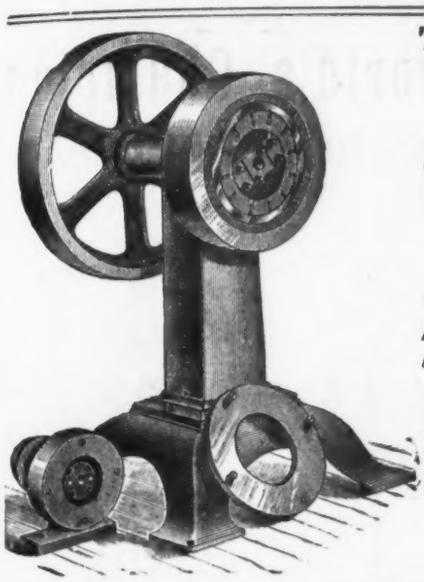
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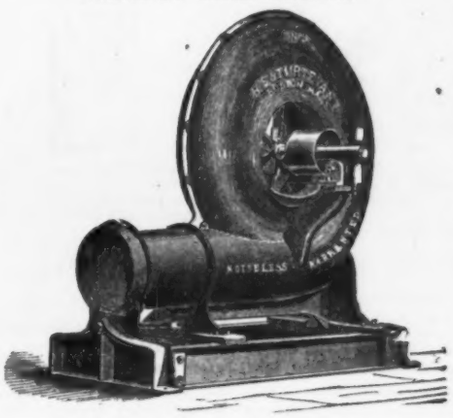
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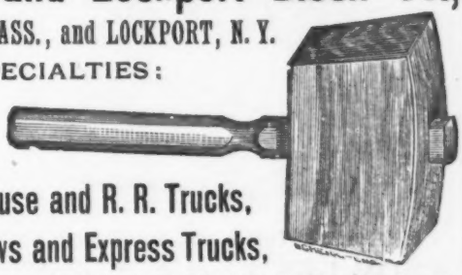
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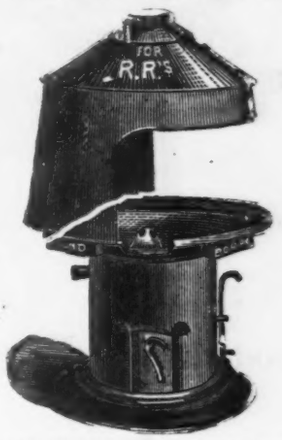
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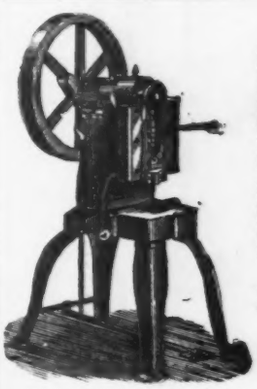
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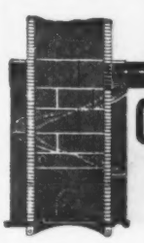
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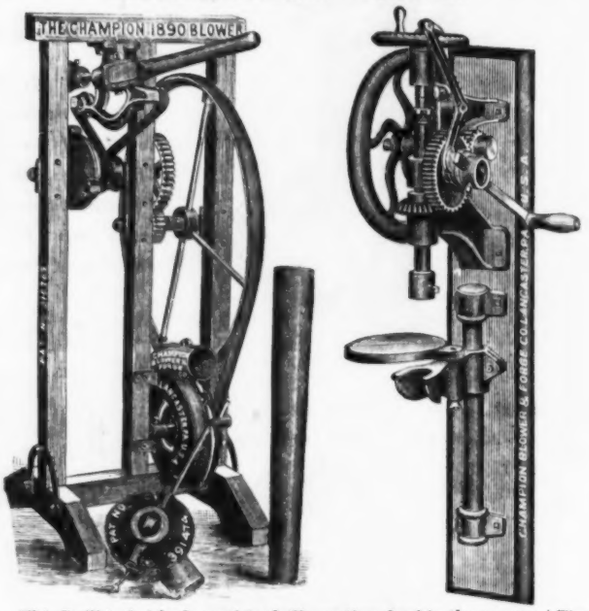


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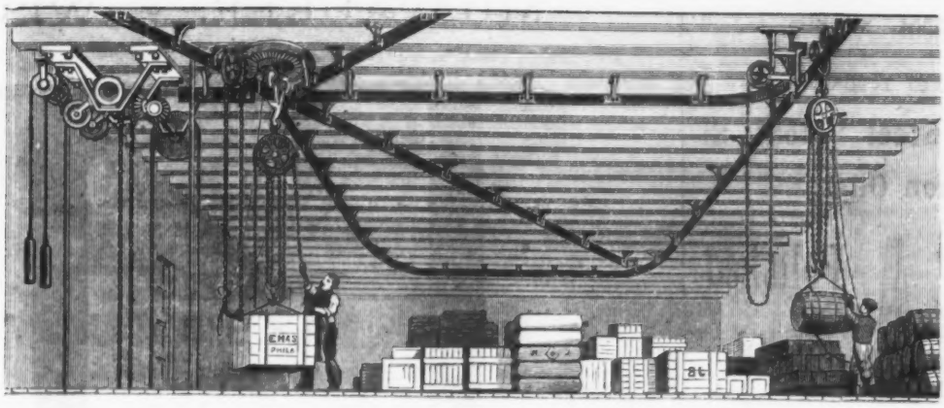
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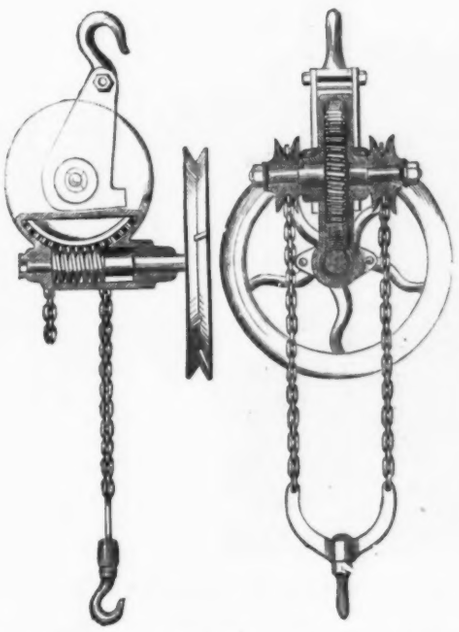
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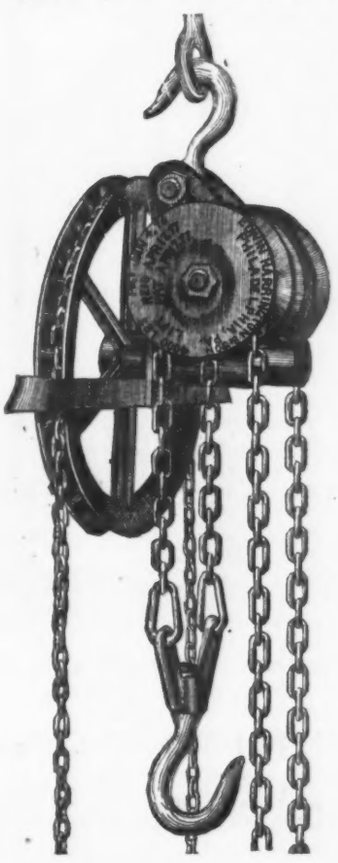
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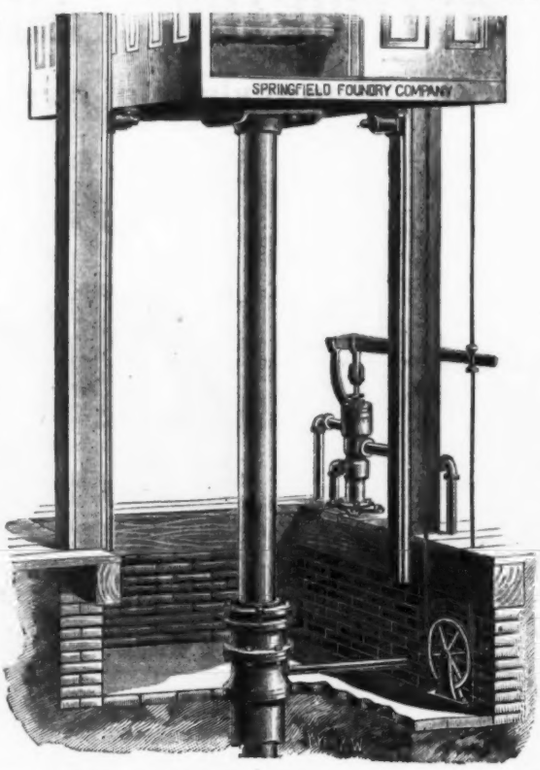
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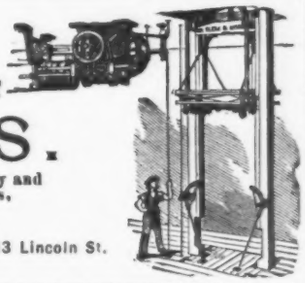
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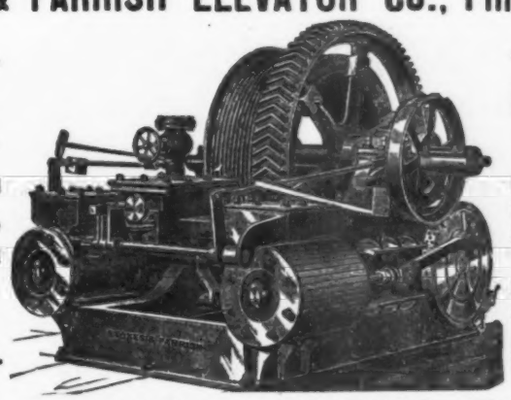
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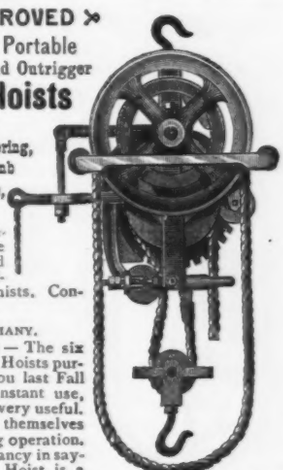
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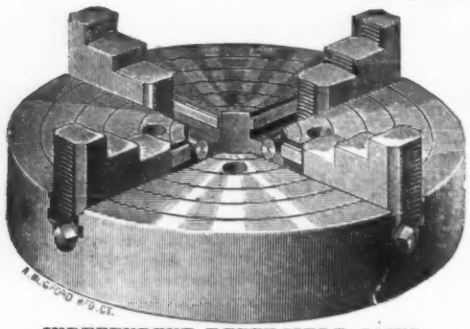
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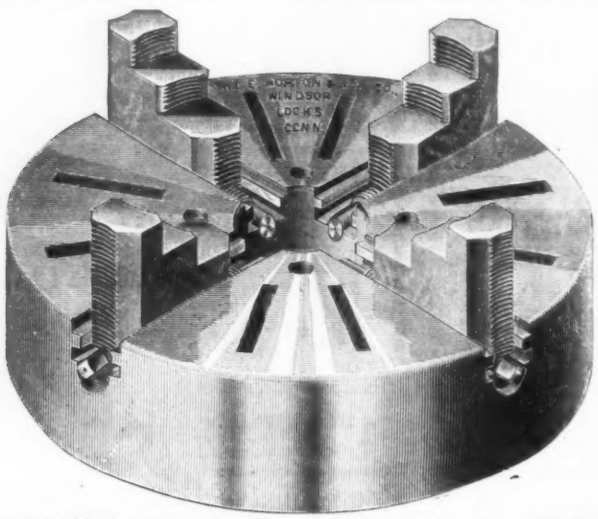
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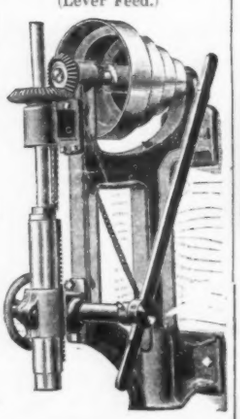
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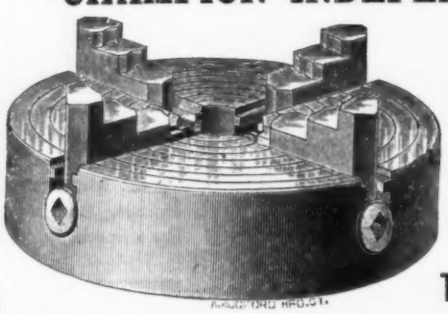
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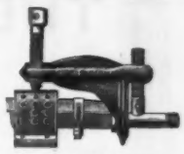


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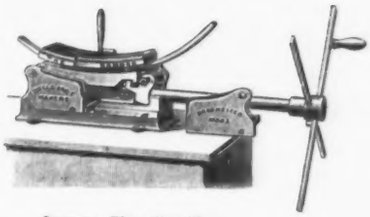



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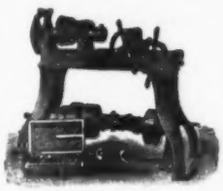
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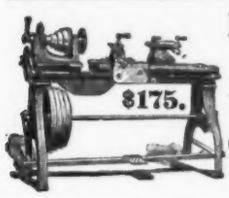
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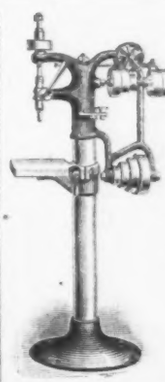
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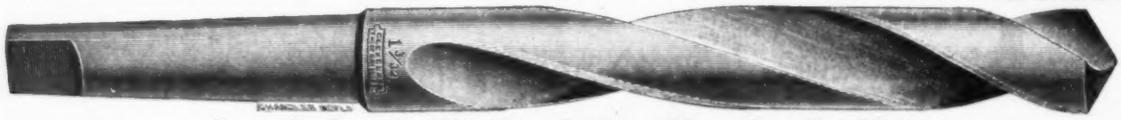
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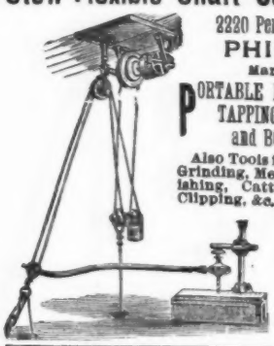
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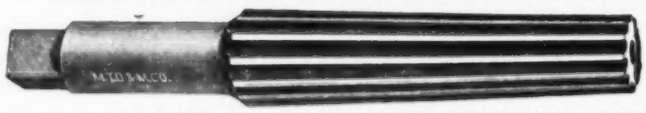
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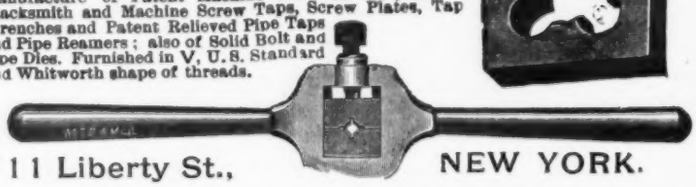
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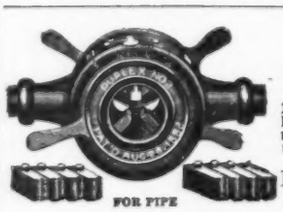
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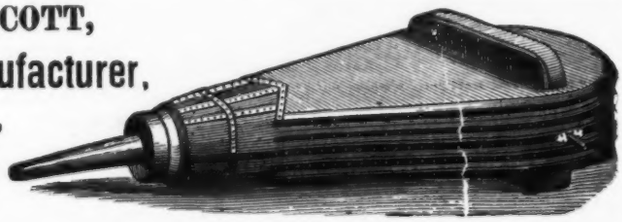
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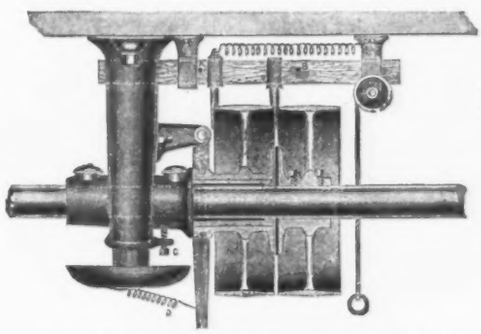
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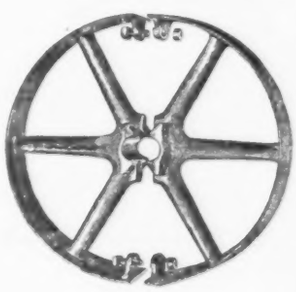
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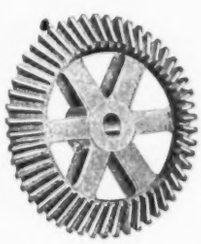
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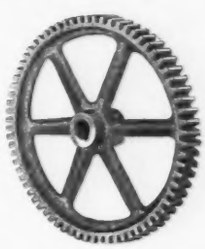
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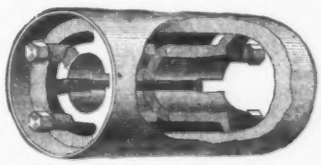
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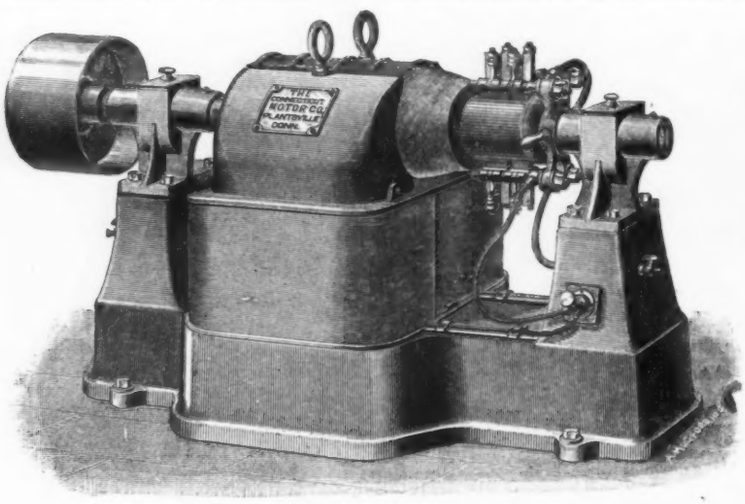
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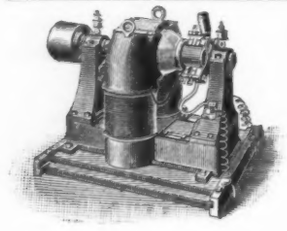
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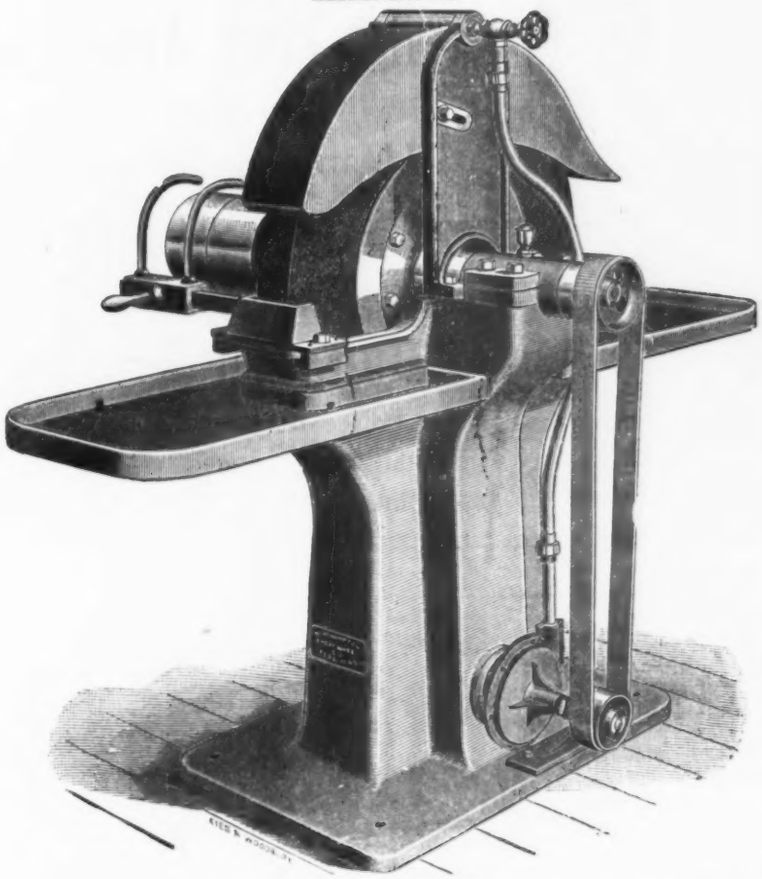
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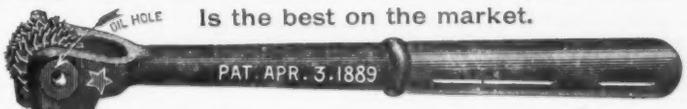
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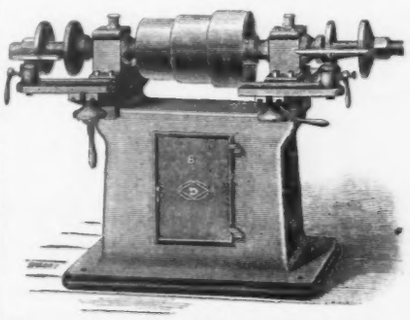
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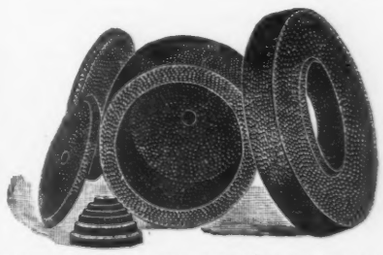
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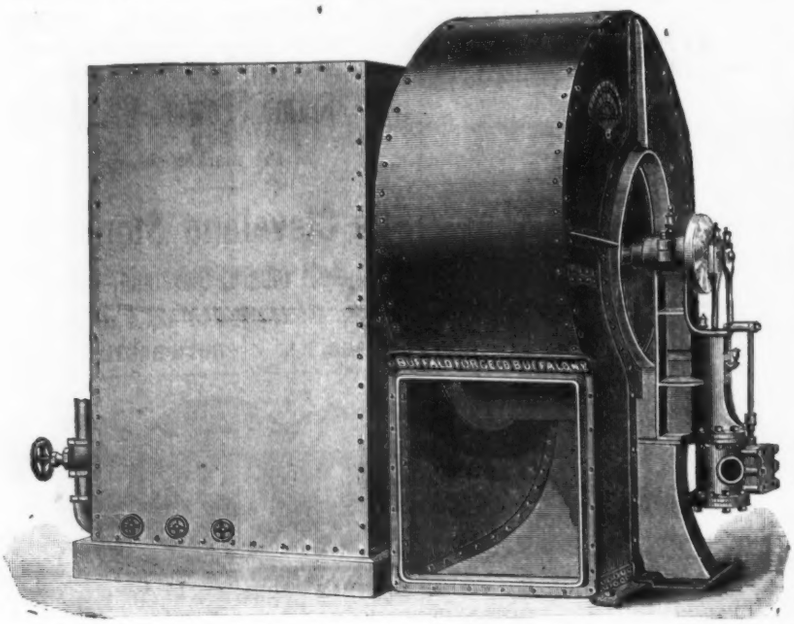
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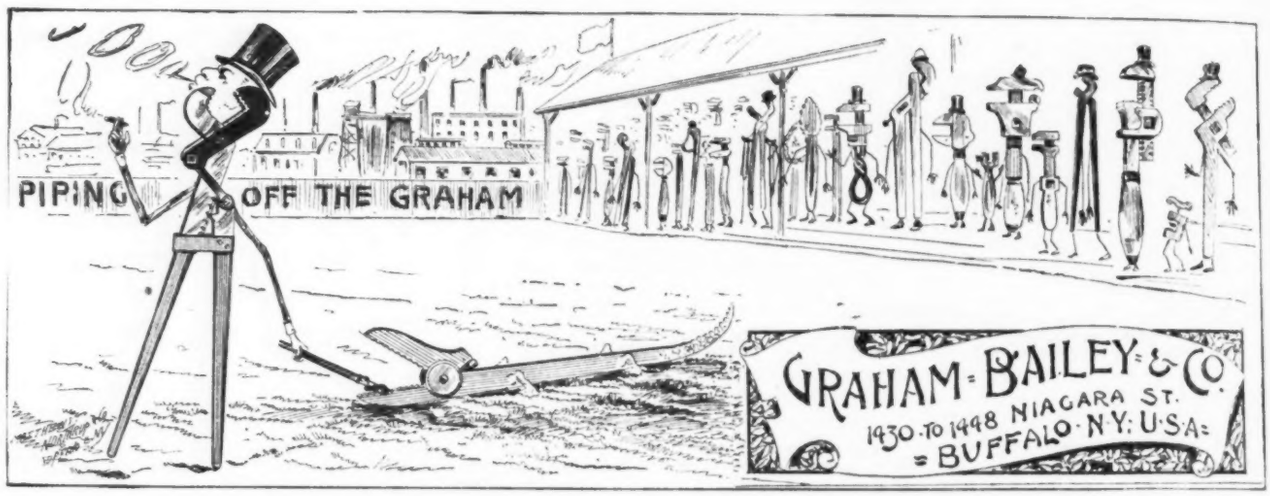
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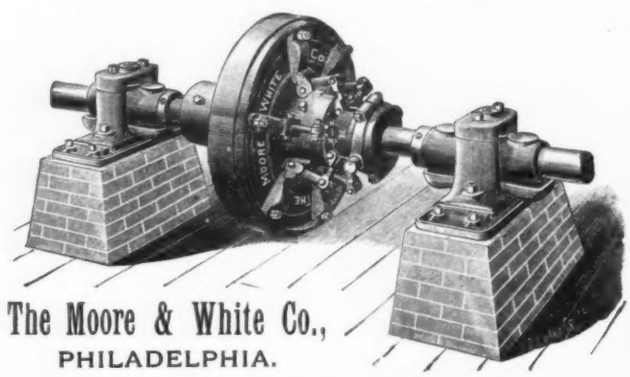


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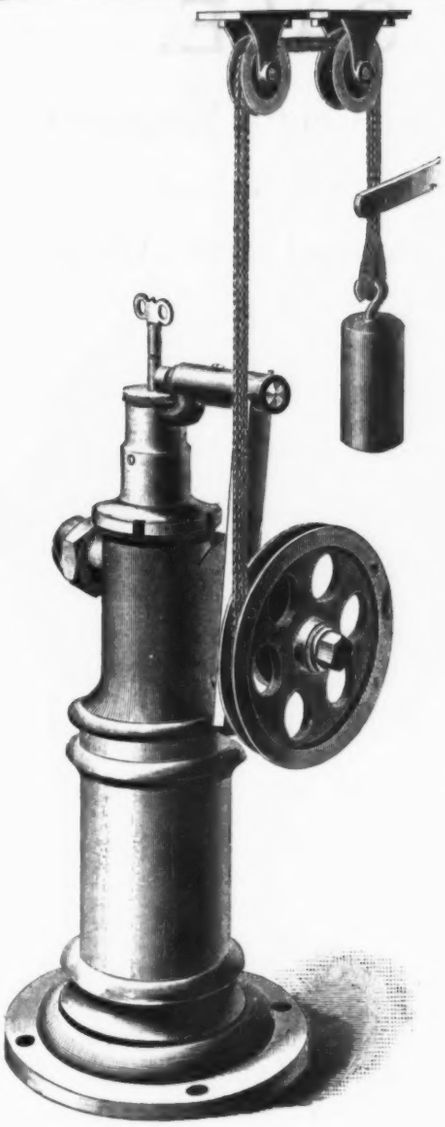
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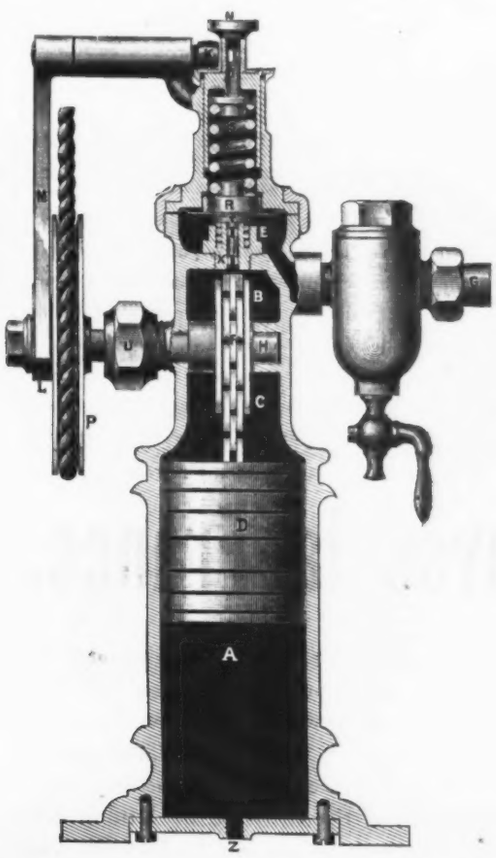
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George H. Corliss Vertical Automatic Cut-off Engine; cylinder, 32 x 60, on top; direct acting shaft below, 17 in. diam., with fly-wheel fitted to it, 20 ft. diam., in eight segments; weight of wheel, 25 tons; suitable for Rolling Mill or Electric Lighting. Also 1 Berriman Heater, 4 ft. diam.; 12 ft. high. Also 2 Sturtevant Pressure Blowers, 6 ft. diam.; outlet 20 x 24; with 14 in. Pulley on each side for 12-in. belt. Also lot of Steam and Exhaust Pipe, and connections, from 8 in. to 14 in. diameter. Address
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FOR SALE.—Half Interest in Foundry, Machine, Boiler and Blacksmith Shop. Established in '42. Centrally situated in city of 35,000 population. Reasons for selling, desire to retire from business. Address "FOUNDER," office of *The Iron Age*, 66 & 68 Duane St., New York.

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1 100 H.-P. Horizontal Engine Cylinder. 18 in. x 36 in.
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6, 8, 10, 15 and 20 H.-P. Hoisting Engines, single & double cyl. & drum. Comb'd & single.
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1 Brinton & Henderson Steam Pump, 2-in. discharge.
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50 Upright Tub. Steel Boilers: new; 4 to 40 H.-P. Cheap.
1 Light Helve Hammer, weight about 1000 lbs.
25 tons new turned shafting, 4¼c. per lb.
1 Perkins Engine Lathe, 21 in. x 18 ft.
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1 New Haven Planer, 30 in. x 30 in. x 9 ft.
2 Power Punches, ⅝-in. hole in ⅜ in. iron, approx.

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Engine Lathes.—42 in. x 12 ft.; 32 in. x 12 ft.; 29 in. x 15 ft.; 24 in. x 28 in. x 20 ft.; 1 each 24 x 10 ft. 12 ft. and 16 ft.; 1 each 17 in. x 6 and 8 ft.; 1 each 16 in. x 6, 8 and 10 ft.; 1 each 14 in. x 6 and 8 ft.; 6 12 in. x 5 ft.; 2 each 11 in. x 4 and 5 ft.; 2 each 10 in. x 4 ft. power or foot power; 1 16 in. x 6 ft., 15 in. x 6 ft., 14 in. x 5 ft. Fox Monitor Lathes; 1 15 in. x 6 ft. Square Arbor Fox Lathe; 1 each 15 in. x 6 ft. and 14 in. x 5 ft. Turret Lathe; 1 Engine Lathe, 14 in. x 6 ft. Toper.
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1 Planer, 20 in. x 20 in. x 4 ft. and 22 in. x 22 in. x 5 ft.
1 " 24 in. x 24 in. x 5½ and 6 ft.
1 " 30 in. x 30 in. x 6 ft. 30 in. x 30 in. x 9 ft.
1 " 32 in. x 32 in. x 10 ft. 42 in. x 36 in. x 12 ft.
" 36 in. x 28 in. x 10 ft.
1 " 60 in. x 66 in. x 24 ft. with 1 head.
1 " 30 in. x 30 in. x 9 ft. with 1 head.
1 " 32 in. x 32 in. x 10 ft. with 2 heads.
1 " 42 in. x 42 in. x 12 ft. with 2 heads.
1 " 50 in. x 50 in. x 17 ft. with 1 head.
1 " 100 in x 100 in. x 18 ft. with 2 heads.
1 Friction Shaper, each 15 in., 20 in., 30 in. stroke.
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1 each Nos. 1, 2, 3 and 4 Wire Feed Screw Machines.
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1 No. 2½ in. Fowler Press. 10 foot and Power Presses.
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12 Punching and Shearing Machines, assorted.
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1 each 48 in., 60 in. and 72 in. Radial Drill.
1 New Horizontal Boring Machine with facing attachment. Newark Machine Tool Co., makers.
1 48-in. Gear Cutter.
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1 20 in. stroke Fitchburgh T. H. Shaper.
Also full line of New Machinery.
Correspondence solicited.

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1 30 x 30 x 8 2d-hand Planer rebuilt.....$350.00
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1 26 in. x 16 in. Engine Lathe. Complete and nearly new..... 455.00
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AMERICAN TOOL WORKS, Cleveland, Ohio.

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Vertical Engines; one 44 x 36 in., one 42 x 36 in. and one 30 x 36 in.
Horizontal Engines; one 26 x 48 in. and smaller; one pair of 26 x 28 in. Blooming Mill Engines.
20 in. Sheet Mill.
Hydraulic Ladle Crane with pumps and accumulators.
Rail, Bar, Sheet and Scrap Shears and Clipping Shear. New and second-hand.
One 12 x 20 in. Saddle Tank 3-foot gauge Locomotive.
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One 9 x 14 in. Saddle Tank 3-foot gauge Locomotive.
21 Hoisting Engines, 9 Derricks, with Crabs, Wire Rope, Manilla Rope, Steel Hoisting Tubs, Contractors' Tools and Machinery.

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***FOR SALE* (Second-Hand).**

1 16 in. x 6 ft. Engine Lathe. A 1 order.
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1 30 in. x 30 in. x 8 ft. Planer. A 1 order.

Send for prices for *New Planers*.

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Two Durham Hot Blast Pipe Stoves, all complete, including bales, binders, chimney, &c, for delivery after October 1. Can be seen in operation at Vesta Furnace, Notts Station.

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One Large Double Hoisting Engine and Boiler.
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One 12 in. x 24 in. Horizontal Slide Valve Engine.
One 10 in. x 18 in. " " " "
One 10 in. x 12 in. " " " "
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Three 16 in. Upright Drills, lever feed.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers

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1 Planer, planes 10 ft. long 52 x 48.
1 Sellers Planer, 8 ft. 38 in. x 36 in. double head.
1 Planer, planes 8 ft. 39 in x 30 in.
1 Planer, planes 5 ft. 24 in. x 24 in.
1 Planer, planes 3 ft. x 16 in.
1 20 ft. bed 72-in. Heavy Lathe
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1 10 ft. bed 20-in. Engine Lathe. Good.
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20 in. B. G. S. F. Drilling Machine.
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1 Small Power Press.
1 Vertical Single Spindle Tapper.
Send for List of Second-hand Tools.

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Bridge Store No. 16, on Frankfort St., New York.

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Corliss Engine, 22 in. x 60 in.
Wheelock " 14 in x 42 in.
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Knowles Pump, 30 in. x 18 in. water cylinder.

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One 100 H.-P. R. R. Locomotive Boiler, good for 100 lbs. steam.
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Baker Blowers, Nos. 1, 2, 4, 4½ and 5½.
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Second-hand Hoisting Engines, from 8 to 30 H.-P.; all sizes of New Vertical (Luken Steel) Boilers, from 7 to 31 H.-P.

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At once, one large size Hot Press Nut Machine, to make Nuts up to 2½ in. square or hex, new or second-hand, if of modern make and in good condition.
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Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.
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LOW PRICES.

20 in. x 12 ft. Fitchburg Lathe.
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4 24-in. Drill Presses.
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16 in. x 24 Atlas Engine. New.
18 in. x 24 Atlas Engine. New.
12 in. x 36 ft. Patent Green Engine.
16 in. x 36 ft. Horizontal Engine.
4 H.-P. Baxter Engine and Boiler.
15 H.-P. Shapley " "
7 H.-P. Gas Engine.
30 Vertical Engines. All sizes.
25 Horizontal Engines. All sizes.
2 42 in. x 11 ft. New Horizontal Boilers.
1 3 H.-P. Shapley Boiler.
1 40 H.-P. Locomotive Boiler.
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1 " " " " 7 ft. " "
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One 16 x 42 Babcock & Wilcox Engine.
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One 14 x 42 Greene Engine.
One 10 x 30 " "
One 10 x 24 Exeter Engine.
Three 150 H.-P. Corliss Upright Tubular Boilers
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Steam and Power Pumps of all sizes.

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FOR IMMEDIATE DELIVERY.

One New Haven Planer, 40 in. x 36 in. x 10 ft. Second-hand, in fine condition.
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One Open Side Planer, planes 30 in. wide, 8 ft. long, with supplemental rolling table. Practically new.
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One Walcott Shaper, 32 in. stroke, with key-seating attachment. Is new, but will be sold at a discount.
One New Haven Lathe, 42 in. swing, 28 ft. bed. Second-hand, in good running order.

Send for list of New Machinery on hand.

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FOR SALE.

1 Berryman Heater, 6 ft. x 20 in. Very good.
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1 6 x 12 Horizontal Engine.
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1 6 H.-P. Vertical Engine.
1 40 H.-P. Return Tubular Boiler.
1 35 H.-P. Return Tubular Boiler.
1 25 H.-P. Return Tubular Boiler.
1 20 H.-P. Return Tubular Boiler.
2 18 H.-P. Vertical Boilers.
1 24 x 20 x 7 ft. 7 in. New Haven Planer.
3 30 x 30 Cylinder Boilers (these may be used for stacks).

All of the above are in first-class condition and good working order.

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Second-Hand Machinery Cheap.

1 84 in. x 20 ft. Engine Lathe.
1 84 in. x 20 ft. Engine Lathe. With end face plate and rest.
1 90 in. x 18 ft. Engine Lathe. Triple Geared.
1 10 in. x 3 ft. Traverse Shaper. Sellers make.
1 No. 3 Universal Miller. Brainard.
1 No. 2 " " Brainard.
1 No. 2 Lincoln Pattern Miller.
1 No. 1 Plain Miller. Brown & Sharpe.
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1 Set 10 in. x 6 ft. Power Bending Rolls.
1 No. 7 Root Blower.
1 400 lb. Drop Hammer.
1 800 lb. " "
1 Trip Hammer.
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1 No. 3 Foot Press. Bliss.
1 Horizontal Drilling Machine.
1 No. 2 Two-Spindle Profiling Machine.
1 13 in. Vertical Slotter.
1 12 in. Vertical Slotter. Bement.
1 12½ in. x 20 in. Armington & Sims Engine.
1 8 H.-P. Portable Engine and Boiler, on wheels.
1 10-H.-P. " " " on skids.
1 No. 1 Universal Grinding Machine. Brown & Sharpe.

We are agents for Pratt & Whitney Co.'s Machinery.

We have the finest line of Power Presses in the market. Send for catalogue.

Write us of what you want, and send description of machinery that you wish to trade or sell.

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Machinists' Tools, Lathes, Planers, &c.; been used about two years; now in fine order; remains of bankrupt estate of engine works; to be sold low for prompt cash. For particulars and circulars address

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2 Pipe, 2½ feet diameter, 24 feet long, with cast iron flanges, suitable for

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24 8d Nail Machines and Patterns.
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Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address

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Iron Tools, Second-Hand.

1 13 in. x 5 ft. Engine Lathe.
1 23 in. x 12 ft. " " Chain Feed.
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1 26 in. x 10 ft. " " New Haven.
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1 44 in. x 21 ft. " " "
2 24 in. x 24 ft. " " "
1 30 in. x 30 in. x 10 ft. Iron Planer. Putnam.
1 36 in. x 36 in. x 13 ft. " " Sellers.
1 36 in. x 36 in. x 22 ft. " " "
1 36 in. x 36 in. x 18 ft. " " New York Steam Engine Co.
1 8-in. Shaper. Boynton & Plummer.
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1 15-in. " Hendey, Improved Vise.
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1 Large Car Mortiser and Borer.
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Lot Shafting, Pulleys, Hangers, etc.

Also a complete line of new Iron and Wood Working Tools for immediate delivery. Write for quotations: also for small tool catalogue. Mention this paper.

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26 x 60 C. H. Brown Automatic Cut Off.
12 x 24 Plain Slide Valve.
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12 x 18 Woodbury Booth and Pryer Automatic.
12 x 12 Ball Automatic.
10 x 20 Twiss Automatic.
9 x 12 Plain Slide Valve.
8¼ x 10 Armington and Sims Automatic.
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One Boiler, good as new, 48 in. diam., 14 ft. long, double riveted, 25 4-in. tubes; Wetherell & Co. make; fronts, bars and all trimmings complete.
Two 75 H.-P. Boilers, all complete; I. P. Morris & Co. make; best flange charcoal iron, double riveted; blow offs, 30, 36 in. diam.
Smoke Stacks, Iron Tanks, Engines and Boilers, all sizes. Nearly everything in the Machinery line. Scrap Iron and New and Old Metals.

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FOR SALE.

10 Wire Nail Machines, only been run a short time; will sell either all or part; also Forge, Tumbler, Sturtevant Exhaust, &c.

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To close the estate of **THE NEWHAVEN WIRE CO.**, its Wire Drawing Plant is offered for sale; the mill is now running at a profit; there are about four acres of land, a good wharf, substantial brick buildings, and machinery all in good order. For further information, address

SAMUEL A. GALPIN,
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A NEW IDEA!

Choice Second-Hand Boilers, Engines and Machinery at First Hands.

Also odd lots new goods at greatly reduced prices. *Send for my list.*

THOMAS P. CONARD,
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FOR SALE,

By the OTTO GAS ENGINE WORKS, 33d and Walnut Sts., Philadelphia:

1 Betts Planer, 32 in. x 32 in. x 9 ft.
1 Planer, English heavy make, 30 in. x 30 in. x 6 ft.
1 " " " 24 in. x 24 in. x 4 ft.
1 Betts Lathe, 22 in. swing, 5 ft. 4 in.
1 Drill Press, Bickford, 24 in.

These Tools are in perfect order, and some are new and have become superfluous in our shops, through changes in design of our machinery.

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Second-Hand Tools for Sale Cheap.

1 in. Acme Bolt Cutter (old style frame.)
No. 4½ Schlenkler Bolt Cutter (old style) Cuts to 1¾ in.
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Double Lewis, Oliver & Phillips Bolt Cutter. Cuts to 1¼ in.
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3 Spindle Bolt Nut Tapper.
6 ft. Compound Shaper (double tables).
12 in. Crank Planer.
Durfee & Doe Key Seating Machine.

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Hendey Engine Lathes, 14x6 ft. 18x6-8-10 ft.
Prentice " " 14x6 ft., 16x5-8 ft., 18x8 ft.
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Wright " " 16x6 ft., 20x10 ft., 24x12 ft.
McMahon " " 16x8 ft., 20x12 ft.
Lathe & Morse Engine Lathe, 20x10 ft., 27x12 ft.
Fay & Scott " " 28x16 ft.
Planers, 20x4 ft., 22x5 ft., 24x6 ft., 30x8 ft.
Prentice Drills, 20-21-25-28-32 in. swing.
Blaisdell " 25 in., complete.
Currier & Snyder 28 in. Drill, complete.
Shapers, crank motion, 15-16-24 in. stroke.
Upright Boring and Turning Mill, 39 in. swing.
Universal Milling Machine, No. 2, Garvin.
Cabinet Turret Lathe No. 2, Am. Tool Co.
Brass Lathes—Turret and Square Arbors.
Large stock of *second hand tools*—all kinds—that we have replaced with new ones. *Prices low.* Send for complete list.

J. J. McCABE,
Successor to E. P. BULLARD'S New York Machinery Warerooms,
68 Cortlandt St., New York.

Second-Hand Tools Wanted.

One good Boiler Plate Shear, about 30-in. gap, to shear ¾ plate; with clutch and movable blocks.
One Hilles & Jones No. 3 Radial Drill.
Address
"X.,"
953 Rookery Building, Chicago, Ill

ROD MILL

Wanted by a party contemplating erecting a Wire Rod Mill in the West to roll 40 tons wire rods single turn, with all necessary appurtenances, including power. Address correspondence, with estimates and proposition, to
C. R. PARSONS,
140 Nassau Street, Room 86, New York.

Boiler Shop For Sale.

In a town of 15,000 inhabitants in Kansas, a new Boiler Shop, 48 x 96, thoroughly equipped with modern power tools on three trunk lines railroads of with private switch; no competition within 100 miles; easy terms to buyer.
Address "KANSAS,"
office of *The Iron Age*, 59 Dearborn St., Chicago.

FOR SALE (Second-hand).

2 Colt Compound Drop Presses.
1 Engine Lathe Chain Feed (5 ft. bed).
1 Double Cam Lathe (6 ft. bed).
1 Cutlery Rolling Machine
at the Bridgeport Iron Yard,
Housatonic Ave., near Congress St.,
GEO. J. BROWN.
Also wholesale dealer in scrap iron, steel and metals, second-hand machinery, engines, boilers, pipe, old railway material.

FOR $25,000

I will sell a very profitable Manufacturing Plant, all running in good shape; goods sold as fast as produced; poor health the only motive for selling; experience not essentially necessary, as all work is produced by the piece; margin of profit very large. Running 15 years without a stop. This is an extraordinary chance for an energetic young man. Address
"MANUFACTURING PLANT,"
office of *The Iron Age*, 66 and 68 Duane st., N. Y.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

CAPITAL WANTED.

From $30,000 to $40 000 capital from either one or two parties, to be invested in a limited partnership to lease a steel plant and manufacture steel and forgings. Well located, where coal and labor are low. Mill is well equipped for making the following kinds of steel: Tool, spring, all kinds of plow and agricultural steel and shapes, rake teeth, also crowbars, pickeyes, railroad picks, mattocks and other kinds of paying specialties. Forge has several hammers and is in good order. The advertisers own the plant and have a market for the product, and will furnish their portion of capital. Parties furnishing capital can have secretary and treasurership. None but principals need apply. Address "STEEL & IRON," office of *The Iron Age*, 220 S. 4th St., Philadelphia.

Portland's Great Peninsular Property.

Portland, Oregon, is as large as both St. Paul and Minneapolis were in 1880. She will have 400,000 in 1900, as they now have. The old city is on the Willamette's west bank, containing but eight square miles. The development is rushing across on the 18 square miles of the Peninsula between the Willamette and Columbia Rivers, with 18 miles of deep water front, already containing Portland's shipping, and soon to hold her wholesale and manufacturing interests. Property purchased now for hundreds may soon sell for thousands.

Foundrymen.

Writer wants to place orders for 50,000 Castings weighing 10-11 lbs. each. Delivery points New York, Chicago and St. Louis; prompt cash. Send address for particulars.
H. H. MANSFIELD,
52 Wall St., New York.

A RARE OPPORTUNITY.

A valuable manufacturing plant will be leased for a term of years, rent free, to any reliable company who will give regular employment to 50 or more men; the plant is suitable for a Foundry and Machine Shop, or similar industries. For particulars address
THE GLEN ROCK IMPROVEMENT ASSOCIATION, Glen Rock, Pa.

FOR SALE. BLOWING ENGINE.

Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address
JAMES LEFFEL & CO.,
Springfield, Ohio.

WANTED.

A second-hand 5-ton Steam Hammer; must be in first-class order. State price and where tool can be seen.
THE BERLIN IRON BRIDGE CO.,
East Berlin, Conn.

To Those Looking

—FOR—

Manufacturing Sites

IN THE SOUTH.

The most desirable locations in the South for manufacturing wagons, stoves, agricultural implements, furniture, or for foundries, machine shops, rolling mills, muck bar mills, nail works, glass works, cotton or woolen mills and tanneries, are to be found in Virginia along the line of the Norfolk & Western Railroad from Norfolk to Bristol, and upon its branch lines. Hard wood of every variety; pig-iron from the furnaces at Lynchburg (2), Roanoke (2 in operation and 1 now under construction), Pulaski (1), Ivanhoe (1), Radford (1, to be built in 1890), Salem, Graham, Max Meadows and Bristol (1 at each point now under construction), bar iron from the rolling mills at Roanoke, Lynchburg and Richlands (1 to be built in 1890); coke and semi-bituminous coal from the Pocahontas Flat Top field; superior gas coals from the mines on the Clinch Valley extension; glass sand from Tazewell County; cotton from the markets of the Southern States, and wool from all the Western and Southwestern States and Territories, at advantageous freight rates. Favorable freight rates made upon raw materials to all factories established upon its line, as well as to points in the United States and Territories upon the manufactured articles.

Those seeking new fields for manufacturing establishments should not fail to investigate the wonderful development of iron, coal and coke industries that has been made within the past five years along the line of the Norfolk & Western Railroad, and the advantages offered by the State of Virginia in the supply of cheap raw materials, by the Norfolk & Western Railroad in the matter of freight facilities and rates upon raw materials, and for reaching home, far distant and foreign markets, and by the cities and towns along its line in the way of advantageous sites at moderate cost. Many of the cities and towns exempt manufacturing establishments from taxation for a series of years.

For further information as to freight rates and sources of supply of raw materials, apply to A. POPE, General Freight Agent, Roanoke, Va., or to

CHAS. G. EDDY,
Vice-President, Roanoke, Va.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property, will do well to give this consideration; send for diagram and description.
WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

PORTLAND, OREGON.

To Merchants, Bankers, and Manufacturers.

Your attention is invited to the large opportunities for Jobbing of every kind, Banking and Manufacturing in the City of Portland. Portland is the second city and coming metropolis of the Pacific Coast, as New York City denominates the Atlantic Coast.

Without trans-Atlantic railroads till 1883, she already has secured more trans-continental roads than any other city on the Pacific coast. She is nearer Chicago and New York and reached quicker by rail than any other city on the Pacific coast. (See maps and railroad time-tables.)

Portland is situated at the mouth of more miles of river navigation than any city, except New Orleans, in the United States. Over 1000 miles of the Columbia and Willamette rivers and tributaries are navigated by river steamers contributing to Portland's Commerce Portland has 250,000 square miles of area distinctively her own trading territory, in which are now being operated 3400 miles of railway with 1000 miles more to be added before the end of 1891.

Portland has exclusive lines of vessels trading coastwise to San Francisco, 772 miles south, to Puget Sound points and British Columbia points, and to Alaska, 1500 miles north.

She also has exclusive lines of vessels plying between Portland and New York City, between Portland and Japan, and between Portland and China. In addition, Portland loads annually at her wharves over 100 seagoing vessels coming in on special charters after cargoes of salmon, flour, wheat and ship timbers, going to nearly every well-known port in the world.

The tributary territory of Portland is about the size of New England, New York, Pennsylvania and Ohio combined. In 1880 it had scarcely 225,000 inhabitants. To day there are over 1,000,000 and increasing 1000 daily, and must steadily grow to 10,000,000 or more. The immigrants are chiefly farmers.

Portland controls the trade of ten times the fertile acreage tributary to any other Pacific coast point

AND MORE THAN ALL OTHER PACIFIC COAST POINTS COMBINED.

Portland has Unlimited Water Power for Manufactories. Vast Water Power at the Entrance to Deep Sea Navigation is Rare, and Exceedingly Valuable to Portland's Mfg. Development.

Portland has electric, cable and horse-car lines, charming parks and boulevard drives, hotels costing as high as $900,000, churches costing as high as $150,000, a grand system of public and private schools, including a high school costing $127,000, several colleges, and an air of refinement and culture which makes people from the larger Eastern cities feel perfectly at home.

Portland's Leading Commercial Interests are Exporting, Banking and Wholesaling, with Manufacturing Rapidly Developing

The Salmon fisheries of the Columbia river produce $2,000,000 to $3,000,000 annually. The export trade has multiplied several fold in recent years, as the country develops. The banking capital has grown to fourteen banks controlling six millions of capital. Our wholesale trade has grown from $75,000,000 in 1888 to $115,000,000 in 1889, and is yet in its infancy and growing at the rate of over 25 per cent. annually. Our manufacturing output in woolen goods, lumber, boots and shoes, paper, iron and many other lines aggregated over $20,000,000.00 in 1889, and is not yet fairly begun.

All these interests are thriving and yet there is room for enlargement on every hand in a region richer in agricultural resources than Illinois and sister States, in iron and coal similar to Pennsylvania and Alabama, greater in lumber than Minnesota and Maine and unrivalled in the more precious metals.

There has never been a failure of a bank or wholesale house in Portland.

The recent enormous development of the trade of Portland has outgrown all her facilities and her capital. Therefore the Oregon Immigration Board urges and invites correspondence and personal visits from people in all lines of Wholesale Trade, Banking and Manufacturing.

$20,000,000.00 additional capital would find immediate employment, producing profits very large to people with Eastern ideas, yet with unqualified safety. While in several lines we need houses commanding $500,000.00 to $1,000,00.00 capital, in many other lines there is room for young merchants and manufacturers to begin on limited capital, and "grow up with the country."

THE OREGON IMMIGRATION BOARD is an institution supported by several hundred of the more prominent business men of Portland. The commissioners who direct its affairs are the following gentlemen: CHAS B. DODD, President of the Board, Wholesale Hardware Dealer; H. W. CORBITT, Vice-President, First National Bank; D. P. SHERMAN, Cashier Oregon National Bank; T. F. OSBORNE, Mfr. of Bags, Sails, &c., also President of Chamber of Commerce; D. S. COHEN, Wholesale Notions and Fancy Goods; WM. McFALL, Wholesale Paper; JAS. L. DUNLAP, Real Estate Broker; H. E. DOSCH, Retired Wholesale Boot and Shoe Merchant; ELLIS G. HUGHES, Capitalist.

All communications will receive the most careful attention. Personal visits to Portland are strongly advised. Seeing is Believing. Address correspondence simply.

The Oregon Immigration Board.

Portland, Oregon.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

LARGE BUSINESS FOR SALE.

Wyeth Hardware & Manufacturing Company, doing a successful hardware and saddlery hardware business for 30 years; all under one head, but with separate salesmen, traveling men and management; propose to sell the hardware portion of their business, as the only capitalist in the corporation has, for some years, been physically unable to give it sufficient attention and desires to relieve himself of the burdens of business.

The amount of capital should be about $300,000, and a third or half interest may be retained, if parties proposing to purchase should prefer, and would be satisfactory as regards their financial standing and business record.

To any prosperous business house located where territory for business is limited, this is an opportunity rarely offered; the business is well organized, well established, and the best known house of the kind in this section, and every facility would be accorded purchasers.

The business can be increased as much as the capital will justify; the territory extends north, south and west and to a limited extent east, is unsurpassed in fertility of soil, in extent, and the high character of progressive, active business firms.

The railroad facilities are excellent, running in all directions and commanding equal or greater advantages than other markets.

All branches of the mercantile business are more fully represented than elsewhere in the Missouri Valley; this is the original wholesale market of the valley and has always retained the lead.

Communications should be addressed to

W. M. WYETH,
St. Joseph, Mo.

FOR SALE.

In West Chelmsford, Mass., all the Real Estate and Machinery formerly owned by the Hiscox File Co.; the real estate consisting of about 7 acres of land together with the buildings and water power, and the machinery, being such as was used by them in the manufacture of files, machine knives, sword blades and edge tools. There is also on the premises a good 75 horse-power Harris-Corliss engine and good boiler, also a large amount of shafting, belting and supplies. This property is situated about five miles from Lowell, and is very easy of access by railway, with excellent facilities. The entire property will be sold very cheap, either as a whole or in part, and will afford some party an excellent chance to enter into this business. For terms, &c., inquire of

J. W. BENNETT, Lowell, Mass., or
F. G. SARGENT, Graniteville, Mass.

FOR SALE.

27 Gross Tons Steel Rails, 4 feet long and over.

SIMON & BLONDER BROS.,

OFFICE and Yard: 158 and 160 WEST CHICAGO AVENUE,

CHICAGO. - ILLINOIS.

FOR SALE.

RAILS.

100 Tons Iron Rails, 35 lbs. to the yard Fit to relay. Address

JOSEPH HAYS & CO.,
180 Scranton Ave., Cleveland, O.

OLD METAL WANTED.

Heavy Brass, Copper and Brass Turnings; state quantity and price for spot cash.

E. A. WILLIAMS & SON,
107 Plymouth St., - - Jersey City, N. J.

AN old-established Manufacturing Concern, employing a capital of over $100,000 and 125 men, being cramped for space, owing to a steady growth of business, desires a new location with good railroad and water facilities; offers of land and a cash bonus to cover cost of new buildings and moving will have careful consideration.

Address
WM. B. STEWART,
Sing Sing, N. Y.

SOUTHERN CALIFORNIA.

CLIMATIC PARADISE OF THE U. S.
No Snow. No Cyclone.

A Store For Sale.

Good will and stock of about $4,000 in Hardware' Crockery and House Furnishing goods. Price of the two-story brick building (21 x 45 feet), garden and yard (together 12,131 square feet) $7,000. The city of Anaheim (population 1,500), the oldest settlement of Southern California, is surrounded by an extensive farming country, has the finest drinking water and has for healthfulness no rival on the coast. It is situated about 26 miles southeast of Los Angeles and 14 miles from the Pacific Ocean. The store lies between the Southern Pacific and Santa Fé Railroad depots. Address: Charles Pamperl, Anaheim, Orange County, California.

FOR SALE,

For cash only, to quit business, a nice new stock of Hardware, Cutlery, Guns and Ammunition; established about five years ago, in the great Natural Gas City of Muncie, Ind; stock will invoice about six thousand dollars Will rent you the room, which is 18 by 60 feet, and is in a first-class situation, opposite the Court House, east side.

L. L. HODGE & BRO.,
104 No Walnut St., Muncie, Ind.

A RARE CHANCE.

A first-class Hardware Store and Stock for sale, in Northwestern part of New York State, in a good thriving town of 5000 inhabitants; stock consists of Hardware, Stoves, Tin and Kitchen-furnishing Goods; stock would be sold and store rented if desired; can do $35,000 to $40,000 per year with a good profit; stock is all clean and will invoice about $10,000; good reason given for selling. Address "No. 10," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A quarter interest in the largest hardware establishment in a growing Western city of nearly 100,000 inhabitants, doing a business of $250,000 annually. Address

"294 3,"
office of *The Iron Age*, 66 and 68 Duane street, New York.

AT A SACRIFICE.

Paying Hardware and Paint Business, in large manufacturing city, 25 minutes from New York; stock $6000; poor health reason for selling; a rare chance for one wishing to buy. Address

"SACRIFICE,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock. $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

Address "BEST,"
office of *The Iron Age*, 66 and 68 Duane St., N.Y.

AN OLD-ESTABLISHED HARDWARE and House-furnishing business For sale, on a leading avenue of New York City; stock about $8500; discount for cash; established 50 years. Address "GOOD OPPORTUNITY,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.—Hardware, Tool and Factory Supply Store, well established in a good manufacturing district; will be sold at inventory.

HINDLEY & KEEHAM,
61 Greenpoint Ave., Brooklyn, E. D., N. Y.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

WANTED.

Competent and reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
21 Grand Ave., Brooklyn, N. Y

FOR SALE.

The well-established business, known as THE GAYLORD, CROSS & SPEIRS CO., located in Waterbury, Conn., is offered for sale. This plant is on the corner of Benedict and Meadow Sts.; consisting of land, brick and frame buildings, &c.; the foundry and all machinery goes with sale; there is between $10,000 and $12,000 to go with the business. The lot fronts on two streets, 164 feet on Meadow and 219½ feet on Benedict Sts.; there is ample room for another large machine shop or any kind of manufacturing business without being cramped for room; this plant is only two minutes' walk from depot. The reason why this valuable property is put in the market at the price asked is because the owner is West and cannot give the attention that it requires. Take the business in consideration, both in foundry and machine work, it is a rare opportunity that does not occur every day, where one can buy an established business for the low figure, $45,000. The land and buildings alone are worth the price I ask, without the machinery. Address

L. J. BOWEN, Receiver,
Waterbury, Conn.

COAL at **50 cents per ton for twenty years; $1,000,000 cash,** and desirable location, with railway facilities, at **$100 PER ACRE,** worth $500, as special inducements to encourage new manufacturing industries

MEANS that **PITTSBURG, Kansas,** with its unequaled railway connections, is the best point on this continent for the establishing of smelting works, foundries and machine shops and any kind of manufacturing industry consuming coal and looking to the U. S. and Mexico for a market; guaranteeing

PROSPERITY to every dollar invested and every man employed. Gas, 75 cents per thousand. Taxes 3 per cent. on a 30 per cent. valuation; four trunk railways; $7,000,000 invested in industrial enterprises, best of free schools, property cheap. **Now**

TO PITTSBURG is the time to invest. Come and investigate. Write for information and Maps. **PITTSBURG TOWN CO.,**
Pittsburg, Kan. A. W. GIFFORD, General Agent.

PATENT FOR SALE.

We will sell our Patent, No. 414,306, Gopher and Mole Gun, either as a whole or by States. This Gun is being used in California and Oregon with unparalleled success, and is recognized as the only certain mode of killing these pests. It is made entirely of malleable iron and is indestructible.

Particulars, testimonials, references and sample gun sent on application.

FOREMAN BROTHERS,
Oroville, Butte County, California.

FOR SALE CHEAP.

One 7-ft. Lathe, has been used for turning locomotive wheels.
One 6 x 8 Hoisting Engine and Boiler, nearly new.
One 48-in. Chucking Lathe.
Two Cheap Drill Presses.

ALFRED BOX & CO.,
Front, Poplar and Canal Sts., Philadelphia, Pa.

FOR SALE.

Corliss Engine 14 x 48.
11 Tubular Boilers.

H. B. BIRTWELL,
343 N. 3d St., Philadelphia.

The best investment now offered to speculative capital is

Coal, Zinc and Mineral Lands

in Southwest Missouri and Southeast Kansas. If you want to buy, investigate by addressing

FRANK PLAYTER,
Investment Broker,
Pittsburg, Kan.

WANTED.

Hydraulic Plunger Pump (outside packed); about 12 or 14 inch steam, about 6 inch plunger, for pumping sandy water.

COLGATE & CO.,
Jersey City, N. J.

FOR SALE.

Whole or half interest in Foundry and Machine Shop in the best town in the West. Everything new and running at full capacity on paying business. Good reasons given for selling.

Address
BOX 43, Pittsburg, Kansas.

FORK HANDLES CHEAP.

We offer to car lot buyers a large quantity of dry 4⅛ and 4½ foot long manure Fork Handles. Will bend, chuck, bore and belt if desired.

The IOWA FARMING TOOL CO.,
Manufacturers,
Fort Madison, Iowa, U. S. A.

WANTED.

One open-hearth Ladle 8 to 12 tons capacity; also one steam jib crane 10 tons capacity; height 20 feet and to swing 23 feet. State price and where they can be seen; either new or second hand, state which. Address "LADLE," office of *The Iron Age*, 66 and 68 Duane St., New York

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WANTED, at once, new or second hand Rotary Planer. 36 in. or 42 in. head; bed, 9 ft. to 11 ft; head must be movable so as to take more than one cut without moving work.

A. SCHROEDER,
165 Greenwich St., New York.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address.

"MISSOURI,"
office of *The Iron Age*, 220 S. 4th St., Philadelphia.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.
60-INCH LATHE WANTED AT ONCE.
FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

WOLCOTT & WEST, SYRACUSE, N. Y.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON.

SHERMAN & CO.,

Belfast, Me.,

MANUFACTURERS OF

CHOPPING AXES.

Send specifications of Axes wanted and get special prices.

TO BOLT AND NUT MANUFACTURERS.

FOR SALE.

The best machines for making chamfered and trimmed cold press nuts automatically; the only machine that will punch any thickness without injury to the tools from stretch of the iron. Foreign patents for sale.

DUNHAM NUT MACHINE CO.,
Unionville, Conn.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

BRIGHT, energetic Salesman, well acquainted with local trade on Nails, &c.; state age, salary wanted, where last or at present employed; give references. Address "NAILS," Box 380, office of *The Iron Age*, 66 and 68 Duane St., New York.

CHEMIST to act as Analyst and Superintendent of a Chemical Works near Philadelphia; man preferred who has had five years or more experience, a portion of it as superintendent, preferably of a blast furnace. Address, with full particulars and ideas of salary, "ANALYST," office of *The Iron Age*, 220 So. 4th St., Philadelphia.

A COMPETENT MAN who thoroughly understands making forging dies. Two first-class machinists, thoroughly competent to make punch dies, milling machine cutters, and fixtures; steady work for good men. Address SYRACUSE FORGING AND GUN CO., Batavia, N. Y.

GOOD ROLLER to take charge of a 75-ton mill; applicants must furnish reference as to ability in above line of work, stating age, married or single. Address "K M.," 97, office of *The Iron Age*, 66 and 68 Duane St., New York.

HEATER FOR SCRAP and Plate Mill; good steady man; none other need apply. Address "P. O. Box 79," Montreal.

GOOD, ABLE-BODIED Puddle Mill Roller for three high train; position likely to prove later on very satisfactory to right man, with proper snap in looking after work. Address promptly, "LOW," office of *The Iron Age*, 66 and 68 Duane St., New York.

SUPERINTENDENT for a Bessemer Steel Works, engaged in the manufacture of soft steel. He must have had experience in the business, be acquainted with all its details and be able to manage men. To such a man a good salary will be paid. Address, with reference, "BESSEMER," office of *The Iron Age*, 66 and 68 Duane St., New York.

A GENERAL MANAGER or Foreman in a Foundry now in operation, running about ninety moulders, making light gated castings, both grey and malleable iron; persons applying for the position will please give reference and experience in making air furnace and cupola malleable iron castings. Address "AIR FURNACE," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOREMAN for Plumbers' Cast Iron Ware Foundry; must be experienced moulder and be able to control men working under him; one who speaks German preferred; state salary and reference. Address "B. C.," care Lock Box 1086, Philadelphia.

EXPERIENCED and competent Foreman to take charge of Chain Works near New York. Address "COMPETENT," Box 3064, New York.

A FIRST-CLASS TRAVELING SALESMAN, thoroughly acquainted with the Hardware trade on the Ohio River and in the Southwest, is wanted by a leading manufacturer of Builders' Hardware. Address "OHIO RIVER," office of *The Iron Age*, 66 and 68 Duane St., New York.

BOOKKEEPER, by a Hardware and Farm Machinery house; one who is capable of taking charge of collections; must be a first-class accountant; state age, experience and salary required and give reference. A good opening for a competent young man. Address BEEMAN & CASHIN MFG. CO., Evanston, Wyoming.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING CO., Cuba, N. Y.

A TRAVELING SALESMAN to sell Builders' Hardware to the New York City trade is wanted by a first-class house; to the proper man this will be a desirable opening; he should be thoroughly acquainted with the city trade. Address "S. W. & Co.," office of *The Iron Age*, 66 and 68 Duane St., New York.

WE WANT A TRAVELING SALESMAN thoroughly familiar with the Hardware trade of New York State and Northern Pennsylvania; a man fully competent to handle Builders' Hardware especially, can open correspondence with "B. G. B. & Co.," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

FIRST-CLASS STOVE and Hardware Salesmen to take one good selling specialty on a commission. Address W. H. PECKHAM, Minneapolis, Minn.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each

BY A THOROUGHLY experienced Hardwareman, a position as Traveler or Correspondent; has an experience of 15 years; for past six years had general charge of a large business, prior to which was on the road; fully competent to fill any important position in connection with the Builders' Hardware business. Address "A. M. B.," Box 7, office of *The Iron Age*, 66 and 68 Duane St., New York.

FROM OCTOBER 1st, 1890, to May 1st, 1891, I will visit all the large cities and towns in the States of New York, New Jersey, Maryland, New England, Delaware and Pennsylvania; call on the wholesale and retail Hardware trade, architects and manufacturers; would like to represent some Western house during these dates or permanently; am a traveling salesman of 12 years' standing and can give best of references. Address "Z. Y.," office of *The Iron Age*, 66 and 68 Duane St., New York.

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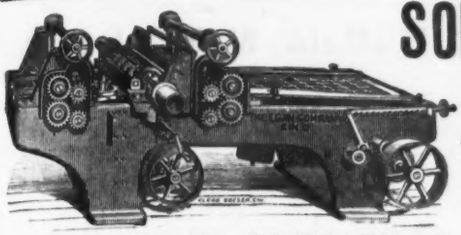
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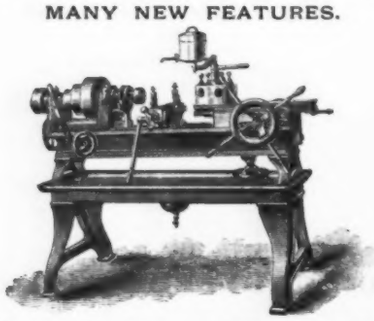
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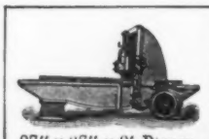
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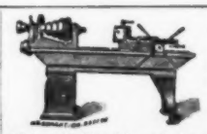
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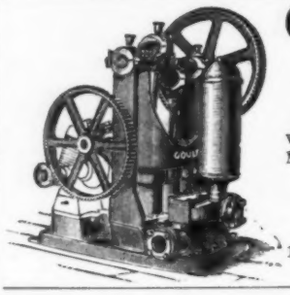


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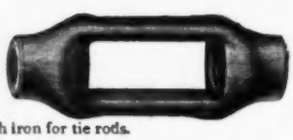
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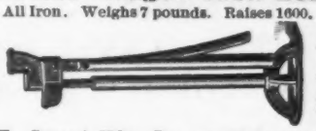
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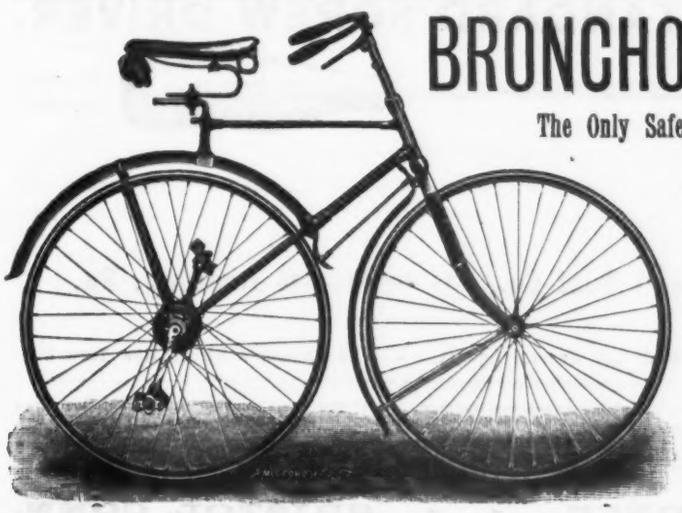
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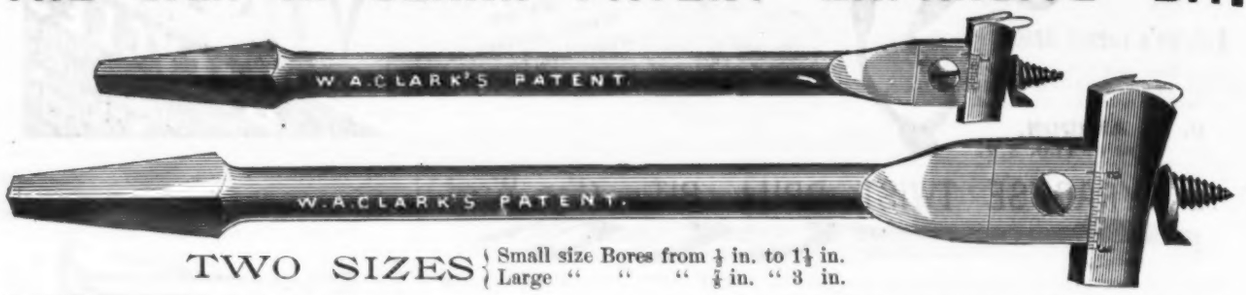
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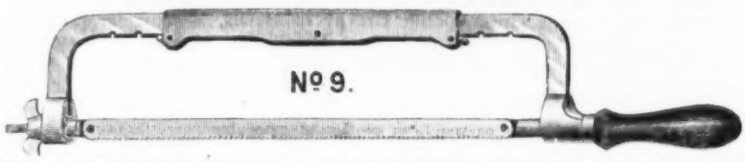
We fully warrant all saws marked with a star and bearing our name.

Take notice that Blades and Frames are listed separately, and order what you want of each kind.

STAR HACK ★ SAW BLADES.

Length of Blade,	6,	7,	8,	9,	10,	11,	12:	assorted, 6 to 9.
Price, per dozen,	55c.	60c.	65c.	70c.	85c.	95c.	$1.05	65c.

HACK SAW FRAME.



This frame holds blades from 8 to 12 inches in length. It is an extension frame covered by a steel sheath, as seen in the cut. The sheath makes it very stiff, and at the same time very light. It is polished and nickel plated. The blades may be faced in either direction. We sell this frame at the same price of the No. 0 in our last Catalogue, and expect it will take the place of the old 0 and 1, as it seems to be a great improvement on these.

Price per dozen,.....$12.00.

MILLERS FALLS CO.,

93 READE ST., NEW YORK.

THE STANDARD SCREW DRIVER.

Forged Steel Blades.



Mahogany Handles.

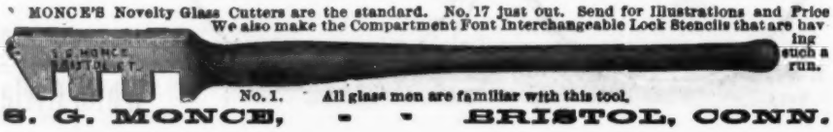
Patented March 25, 1890.

The blades are warranted not to work loose. Every one thoroughly tested and carefully inspected. Made of the best steel, carefully tempered. They are finely finished. Write for prices.

Chantrell Tool Co., SOLE MANUFACTURERS, **Reading, Pa.**

JOHN H. GRAHAM & CO., General Agents, - 113 Chambers Street, New York City.

MONCE'S Novelty Glass Cutters are the standard. No. 17 just out. Send for Illustrations and Price We also make the Compartment Font Interchangeable Lock Stencils that are having such a run.



No. 1. All glass men are familiar with this tool.

S. G. MONCE, - - BRISTOL, CONN.

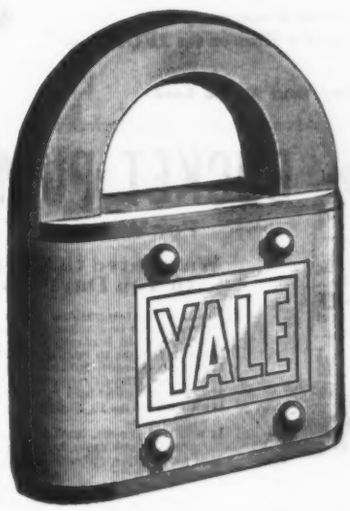
YALE STEEL PADLOCKS.

SEAMLESS DRAWN STEEL SHELLS.

Forged Steel Shackles.

Bronze Tumblers.

ONE SIZE ONLY. TWO INCHES.





FOUR TUMBLERS.

144 CHANGES.

These Padlocks are unsurpassed for Strength and Security, the external parts being of Steel protected by the Bower-Barff Rustless Finish, and the internal mechanism of Bronze, operated by a Double Bitted Flat Steel Key.

THE YALE & TOWNE MFG. CO.,

STAMFORD, CONN.

NEW YORK, 84 and 86 Chambers Street.
CHICAGO, 152 and 154 Wabash Ave.

PHILADELPHIA, 15 N. Sixth St.
BOSTON, 224 Franklin Street.

W. & B. DOUGLAS, MIDDLETOWN, CONN.

Branch Warehouses: 85 and 87 John St., New York; 197 Lake Street, Chicago, Ill.

THE OLDEST AND MOST EXTENSIVE MANUFACTURERS OF

Pumps, Hydraulic Rams, Garden Engines,

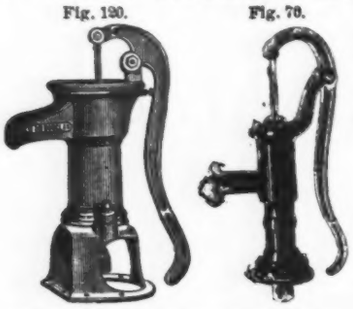
Yard Hydrants, Street Washers, Galvanized Pump Chain, Wind Mill Pumps and other Hydraulic Machines in the World.

DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 190. Fig. 70.



or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

Send for Circular and Price List.

Fig. 209. Fig. 331.



MYERS REVERSIBLE STEEL AND WOOD TRACK HAY CARRIERS

TRADE MARK. A complete outfit. Easy to put up, always reliable and fully warranted to meet the wants of any farmer.

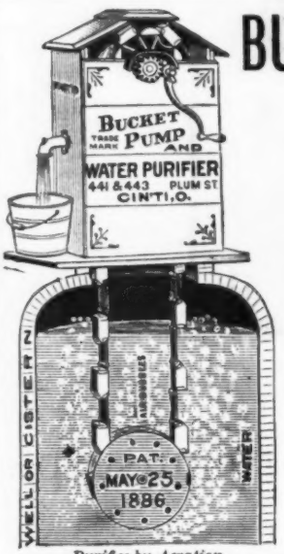


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Purifies by Aeration.

BUCKET PUMP AND PURIFIER

For Wells and Cisterns of any Depth.

Warranted to Purify a Foul Well or Cistern in Ten Days' Use or Money Refunded.

It will draw ten gallons of water per minute.
Never has to be packed, primed or thawed out.
A ten-year old boy can draw water with ease from a 40-ft. well.
No iron tubing to rust or burst. No suckers or valves to wear out.
It has no wooden tubing to wear out, decay or pollute the water.
It will not rust or corrode, as the chain is made of galvanized iron.
It is the simplest and most durable structure made for raising water.
It can be set up in 15 minutes, as there is nothing to fasten below the platform.
It will not freeze, having stood the test of a Dakota winter, 38 degrees below zero, as the buckets discharge themselves.
Has no leather, rubber or wood in contact with the water to contaminate it.
You do not have to pump out a pailful of water to get a fresh, cool drink for every bucket goes down full of air to the bottom and fills with cold water as the air escapes.

BUCKET PUMP CO.,

(Sole owners of patents for the U. S. and Canada)

441 and 443 Plum St., CINCINNATI, O.

EXCLUSIVE AGENCIES GIVEN.

Beware of infringers. No perfect working Pump can be made on this principle without infringing on our patents.

THE DEMING COMPANY,

(Late Silver & Deming Mfg. Co.)

SALEM, OHIO, U. S. A.



MANUFACTURERS OF

CISTERN, PITCHER, WELL AND FORCE

PUMPS

Wind Mill Pumps, Hand and Power Rotary Pumps,

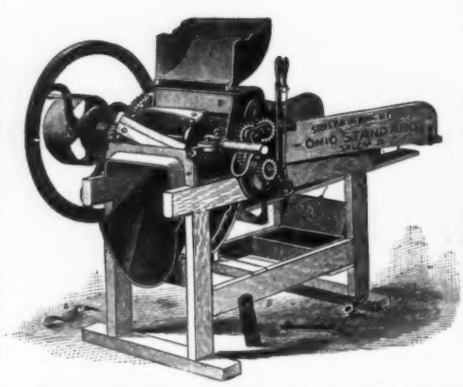
Hydraulic Rams,

Boiler Feed Pumps, Garden Engines, &c.

Write for Catalogue and Prices.

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CRANE COMPANY, - - Kansas City, Mo.



The Ohio Ensilage and Fodder Cutter.

A complete line of machines, embracing ten sizes for hand and power. Carriers furnished with all power sizes when ordered.

SIMPLE, DURABLE AND EFFICIENT.

We also manufacture Meat Choppers and Stuffers, Lard and Tallow Presses, Blacksmiths' Drills, &c., formerly made by Silver & Deming Mfg. Co.

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ENTERPRISE SPECIALTIES



New Champion Force Pump.

With vacuum and air chambers, brass cylinders and brass valve seats—continuous discharge—working parts readily accessible.



Reversible Float Valve For high or low pressure. Positive in action.

Pipe Vise—For bench or wagon. A low-priced, serviceable tool, capacity 3-8 in. rod to 2 in. pipe.



Ratchet Die Stock—For plumbers, pump men, gas fitters; threads pipe in corner, in ditches, in wells, or other difficult places.



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THE HOLMES & EDWARDS SILVER CO.,

—— MANUFACTURERS OF ——

Sterling Silver Inlaid, and Silver Plated Spoons, Forks, &c.

The Most Durable Plated Goods Made.

Also the following brands, solid metal



67 Mexican Silver. 24 German Silver. 50 Nickel Silver. 30 Silver Metal.

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Bears the Rogers Trade-Marks.



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These Goods are RELIABLE. Take No Other.

Manufactured by THE WM. ROGERS MFG. CO.,

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HALL & ELTON'S GERMAN SILVER.

1837



HALF A CENTURY.

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The Pioneer Makers of German Silver Goods.

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The Famous "Dexter."

Second only to the Silver Steel Diamond, and equal to it when made of the same class of steel, is the **Patent Concaved Tooth Dexter.** The patent by which this saw is protected consists of a depression of the face of the cutting teeth through the centre from point to base, thus removing all friction while in use, giving strength and stiffness to the teeth and increasing threefold the durability of the "set." This saw never fails to give the best satisfaction.

ATKINS ALWAYS AHEAD. AAA E.C. ATKINS & CO. INDIANAPOLIS, IND. TRADE MARK

ATKINS'

Cross-Cut, Circular, Band and Gang

SAWS

Are Everywhere Recognized as the

Standard of Excellence.

Western agency for Tanite Emery Wheel.



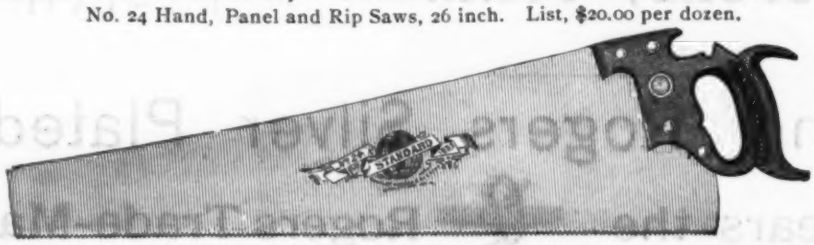
Ground substantially uniform gauge on the toothed edge, and any gauge required on the back.

ESTABLISHED 1853.

MANUFACTURERS OF HAND, CROSS-CUT AND WOOD SAWS.

No. 24 Hand, Panel and Rip Saws, 26 inch. List, $20.00 per dozen.

Extra Thin Back.
Patent Handle.
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Perfect Temper.
Elegant Finish.
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This is the best and cheapest saw made for the mechanic's use. It is fully warranted and will outlast any other saw on the market.

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Manufacturers of

BUTTON'S

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Specially Adapted for Use on Wire Fence.

Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCREW TAPS PIPE TAPS and REAMERS.

Price List on Application.

Established by DANIEL B. KING, 1829.

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BUILDERS' = FINE = HARDWARE.

Knob Locks, Dead Locks, Sliding Door Locks, Barn Door Locks, Padlocks, Latches and Counter Scales.

Special Attention Given to Fine Castings in Iron, Brass and Bronze.

BRONZE, BRASS, SILVER, OXIDIZED SILVER and NICKEL PLATING.

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"If you want a Saw it is best to get one with a name on it which has a reputation.
A man who has made a reputation for his goods knows its value as well as its cost and will maintain it."—HENRY DISSTON.

THE SAWS THAT LEAD THEM ALL

"THE SAW;" HOW TO CHOOSE IT, AND HOW TO KEEP IN ORDER, Sent Free on Receipt of Name and Post Office Address.

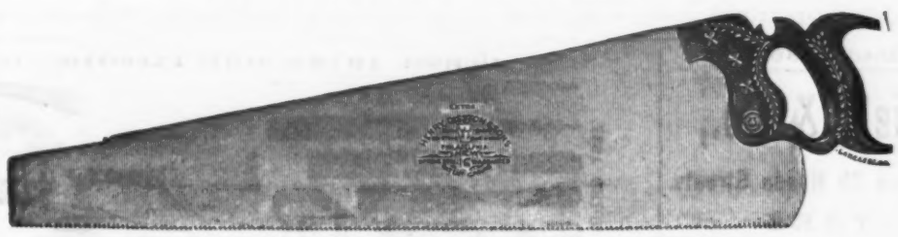
DISSTON & SONS' PATENT D-8 HAND SAW.



This Saw combines all the valuable improvements in Hand-saws that have been made by us of late. The first and most important is the hollow or skew-back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

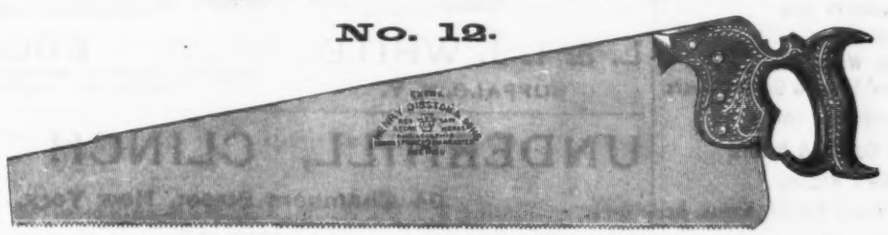
Our New No. 16 Premium Saw.



AN EXTRA FINE SAW IN EVERY RESPECT.

Having the Latest Close up Handle, Spring Steel Blade, Extra Thin Back, Finely Grained, with an Apple Handle and Four Brass Centennial Screws.

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And they will always be in a position to supply them in any quantity, and with the greatest possible promptitude.

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MANUFACTURERS OF

TOOL CHESTS

Of all sizes, complete with tools, for Hardware, Toy Notion and Variety trades.

Factory and Salesroom,

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Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application

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HIGHEST AWARD PARIS EXPOSITION, 1889.

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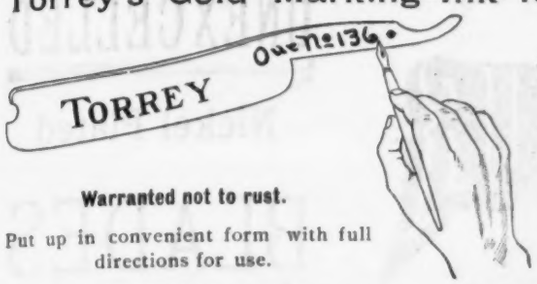
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Can be easily removed, leaving no trace on the steel.

Used with an ordinary pen.

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Put up in convenient form with full directions for use.

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The Most Complete Assortment in the U. S. of

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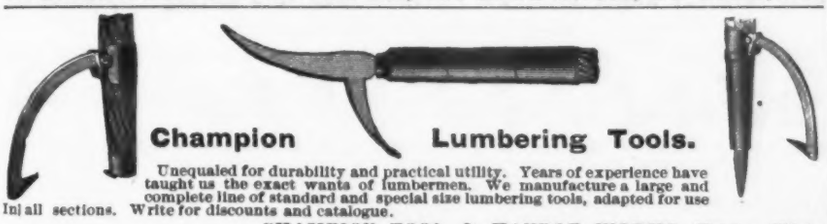
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Cutlery is the largest and finest before the trade. The excellence of our Razors is unequaled.

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Unequaled for durability and practical utility. Years of experience have taught us the exact wants of lumbermen. We manufacture a large and complete line of standard and special size lumbering tools, adapted for use in all sections. Write for discounts and catalogue.

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X, XX WHITE DIAMOND TRADE MARK. XXX

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LABOR-SAVING, LASTING, ECONOMICAL.

A saving of 15 to 20% (if properly used) over any other compositions in the market.

Our XXX Coloring Composition (white) takes the place of rouge; costs less, weighs less and does cleaner and better work.

Send for samples and price list, stating about the quantity you use yearly for both cutting and coloring. Manufactured only by the

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Also sole manufacturers of the celebrated MATCHLESS METAL POLISH, BAKER'S TRIPOLINE and WHITE DIAMOND GLASS and SILVER POLISH

EUREKA SPIRAL SCREW DRIVER. *THE OLDEST & BEST.*



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WILL LAST A LIFE-TIME. SOLD BY ALL JOBBERS.

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Patented Feb. 13, 1877, a new combination of Hooks.

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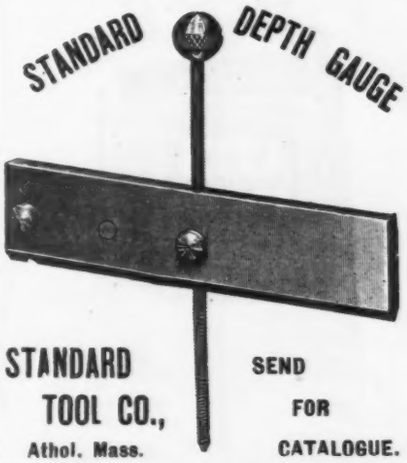
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Caulkers', Carpenters', Stone Cutters, Tin, Copper and Boiler Makers' **MALLETS.** Also extra grades of all kinds of Hammer, Axe, Adze and Chisel handles, Turnings of all kinds.

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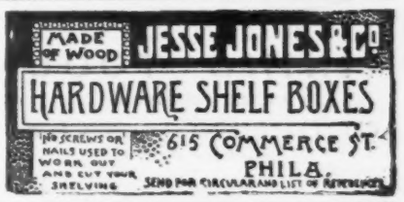
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SHEARS SCISSORS AND SHEEP SHEARS

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Nickel Plated

BLADES

Every pair fully warranted.

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We can meet all demands as to price and quality.

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Established 1841.

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Ship Augers, Auger Bits, Boring Machines and Boring Implements.

ESTABLISHED 1790.

FIRST PREMIUM AWARDS: Mass., 1841, 1848, 1850; International Ex., Paris 1878; Centennial Ex., Phila., 1876



Manufacturers of Car Bits, Jennings' Pattern Auger Bits, Boring Machine Augers, Carpenters' Augers, Mill Augers, Rafting Augers, Gimlets and Gimlet Bits, and Screw-driver Bits.

All Kinds of Machine Bits Made to Order.

All Goods made of the Best Quality of Cast Steel and Warranted. First Premium Medals taken for Superior Quality and Excellence of Finish.

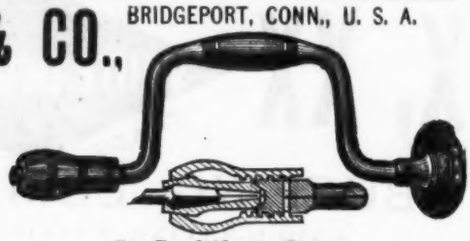
Factory, - - - Fiskdale, Mass.

JOHN S. FRAY & CO.,

BRIDGEPORT, CONN., U. S. A.



Spofford Bit Brace.



Spofford Sleeve Brace.

The Spofford Bit Brace is made under Letters Patent of the U. S. A., granted to N. Spofford, March 23 1880 assigned to John S. Fray & Co.

All Iron, Five Sizes.		Cocobolo Head and Handle, Nickel Plated.		Sleeve Brace, Nickel Plated.	
No. 7	7 inch sweep.	No. 107	7 inch sweep.	No. 70	7 inch sweep.
No. 8	8 "	No. 108	8 "	No. 80	8 "
No. 10	10 "	No. 110	10 "	No. 100	10 "
No. 12	12 "	No. 112	12 "	No. 120	12 "
No. 14	14 "	No. 114	14 "		

The New Britain Hardware Mfg. Co.

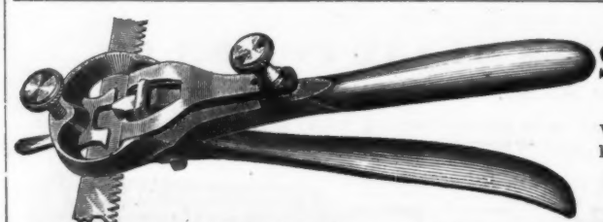
New Britain, Conn., U. S. A.

——MAKERS OF ALL KINDS OF——

Special Machine Screws, Studs, Bolts, &c.

Special Hardware and light Metallic Goods from Wire, Sheet Metal or Castings. Electro, Brass and Nickel Plating.

Correspondence solicited. Address as above.



THE

Superior Saw Set

It beats them all.

Write for circular and price-list. Manufactured only by

Chieftain Hay Rake Co.

CANTON, OHIO.

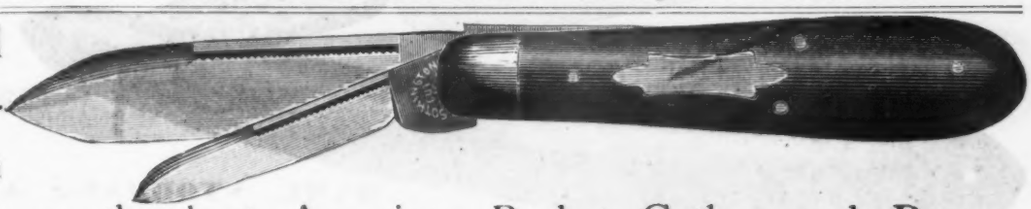
New York Agent, JAS. L. NEEFUS, 103 Chambers St. Philada. Agents, JACKSON, SLAYMAKER & Co., 8 South 4th St

Electric
TRADE MARK

The Electric Cutlery Company,

Salesroom, 91 Chambers St., New York. Factory, Newark, N. J.

Why sell inferior Cutlery when you can secure the best American Pocket Cutlery and Razors.



SOUTHINGTON CUTLERY CO., Southington, Conn.

NORTHAMPTON CUTLERY CO.,

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No. 10. 12 DWT. HAND BURNISHED.

Now manufacture a full line of heavy and light silver plated knives, forks, butter knives, nut picks, etc., in addition to their well known line of standard cutlery.

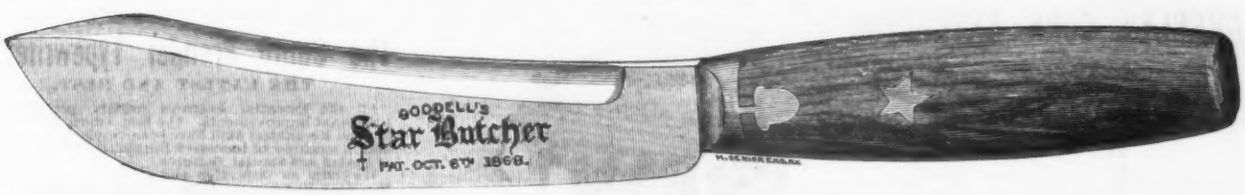
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To every Dealer in the United States who sells

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It will pay you to ask our prices before purchasing. We make a large variety of Table Knives, Carvers, Butcher, Bread, Cheese, Kitchen Knives, &c., &c., Also SHOE KNIVES.

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THE EMPIRE KNIFE COMPANY,

(BEARDSLEY & ALVORD, 1856.)

SOLE MANUFACTURERS OF

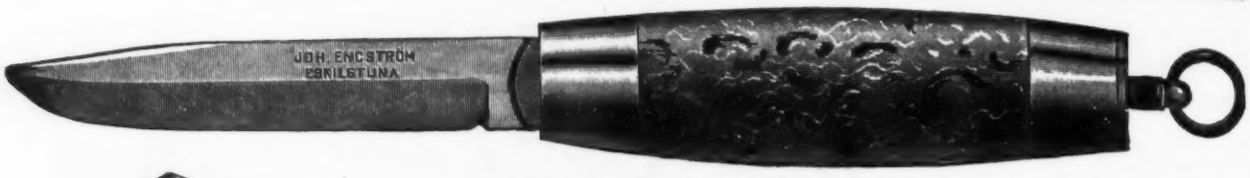
Empire - Pocket - Knives

And Empire Solid Steel Blade Shears and Scissors.



We manufacture also a complete line of forged steel Corkscrews and make a specialty of making Special Screws for parties owning patents.

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ENGSTRÖM'S CELEBRATED SWEDISH KNIVES AND RAZORS.

MEDALS: Philadelphia, 1876; Eskilstuna, 1878; Paris, 1878 and 1881.

Selling Agents:

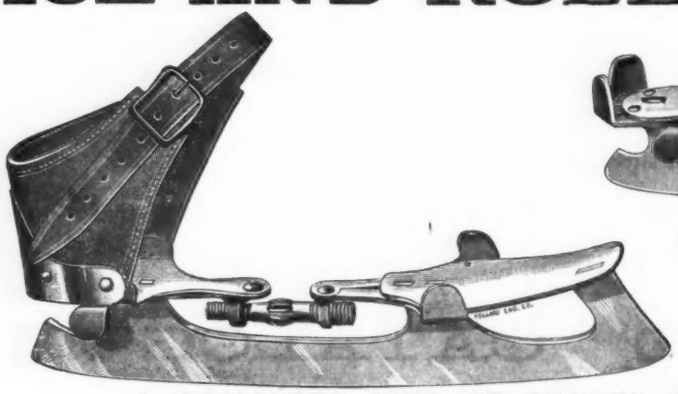
DAME, STODDARD & KENDALL,
374 Washington St., Boston, Mass.

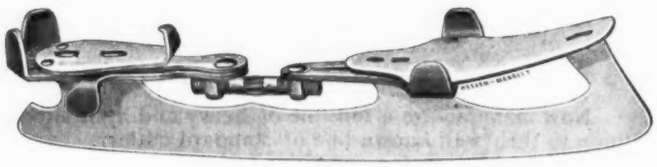
Established 1856. **Incorporated 1886.**

THE SAMUEL WINSLOW SKATE MFG. CO.,

MAKERS OF

ICE AND ROLLER SKATES.



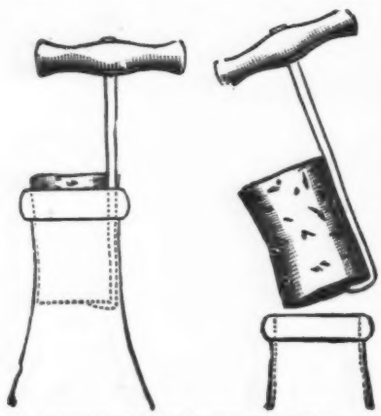


Orders Direct from the Trade Solicited. Send for Catalogue.

A COMPLETE LINE OF ROLLER SKATES ALWAYS ON HAND.

WORCESTER, MASS.

GREELY'S CORK EXTRACTOR.



CORKS LIFTED OUT WHOLE.
Only Play to Do It.

The blade of the Extractor is inserted between the cork and the neck of the bottle. **The groove or air passage in the back of the blade comes against the glass, allowing the air to pass in as the cork is drawn,** thereby preventing suction; hence the cork comes out easily and whole.

SOLD EVERYWHERE.

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The Smith Premier Typewriter

THE LATEST AND BEST.

All the Essential Features greatly perfected. Important Improvements. The Best Inventive Talent and Mechanical Skill have been employed to produce a machine of increased Durability, Excellence of Design and Special Features.

We claim an inspection and a trial will prove it the Most Durable in Alignment, Easiest Running and Most Silent.

All Type Cleaned in 10 Seconds without Soiling the hands.

The Smith Premier Typewriter has been adopted by the Associated Press, of the State of New York, to be used in their telegraphic service, to take dispatches direct from the wire.

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Syracuse, N. Y., U. S. A.

The Leonard Patent Portable Storm Houses.

A long-felt Want Supplied. Comfort and Economy Assured.



The sides and roof are constructed of Corrugated Iron set in a frame of Michigan Pine. The front is a good five panel sash door set in a frame of 2 x 4 pine. The upper panel is set with glass. The whole is neatly painted—two coats and two colors. Has a good latch with porcelain knob, and door spring. It is **Ornamental, Light, Strong, Cheap and Durable.** Anybody can set it up or take it down. Not necessary to have a carpenter. Storm Doors can be taken away in case of removal. The sides of the house are hinged to the front and fold inwards. The gables are hinged to the roof and fold inwards. The whole structure is only six inches thick when folded. To set it up, hook the edges to the door frame and adjust the roof to the top of the door frame. A notch may be sawed in the bottom rail for a projecting step or threshold if necessary. They save their cost in fuel every year, besides the comfort they give. Exclusive agencies given.

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—MANUFACTURERS OF—

Mechanics' Tools and Hardware Specialties.

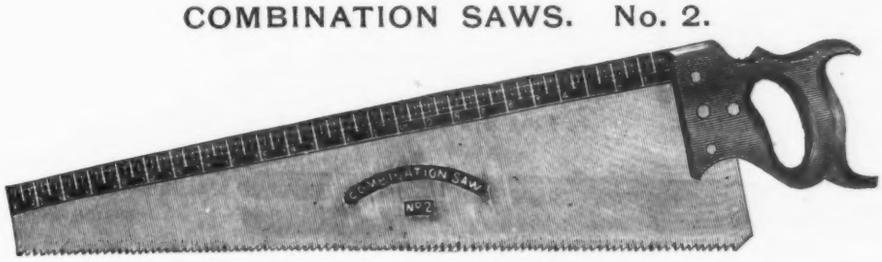
79 and 81 Reade and 97 Chambers Streets, New York.

Having purchased the entire plant of the Port Jervis Saw Works, including the Real Estate, Machinery and Tools, we are now prepared to execute orders on a full line of Hand, Panel, Compass, Keyhole, Kitchen and Butcher Saws.

Cast Steel, Beech Handle, designed for Mechanics' Use.



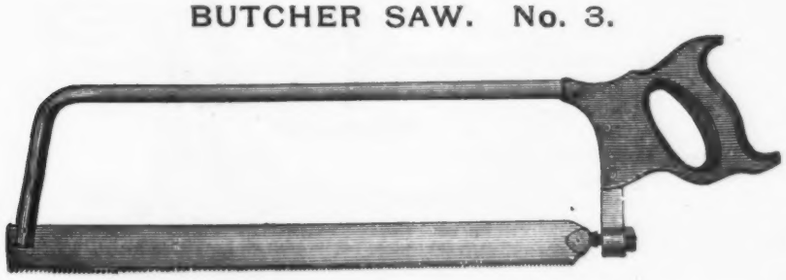
COMBINATION SAWS. No. 2.



MEAT SAWS FOR KITCHEN USE.



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For Sawing Brass, Iron, Steel, Lead Pipe and Metals of all kinds.



No. 30.

CLARK'S PRUNING SAWS. No. 85.





Peter Wright's Patent Solid Wrought Anvil

PETER WRIGHT PATENT SOLID WROUGHT

Fac-Simile of Trade-Mark.



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By Royal Letters Patent.
V. R.
PETER WRIGHT'S
SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE BICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

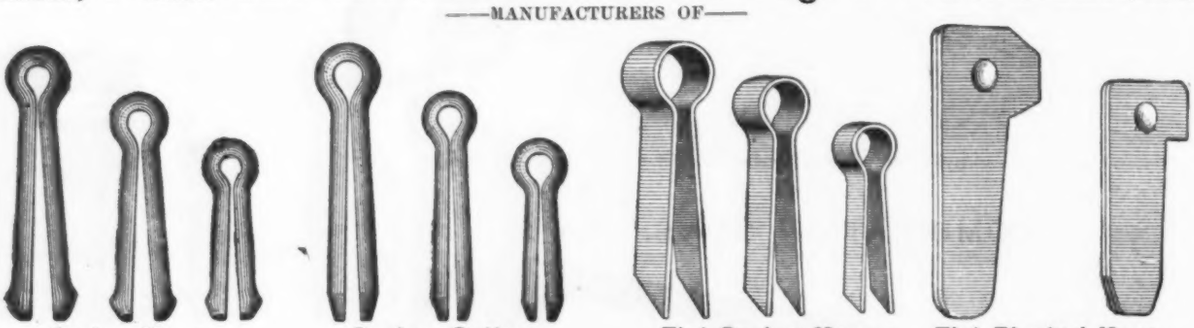
☞ *These celebrated Anvils may be obtained from all the principal Hardware Dealers.*

FACTORIES AT
AKRON, - OHIO.
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The Whitman & Barnes Mfg. Co.

ACTORIES AT
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Spring Keys. Spring Cotters. Flat Spring Keys. Flat Riveted Keys.

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126 Main Street, CINCINNATI, OHIO.

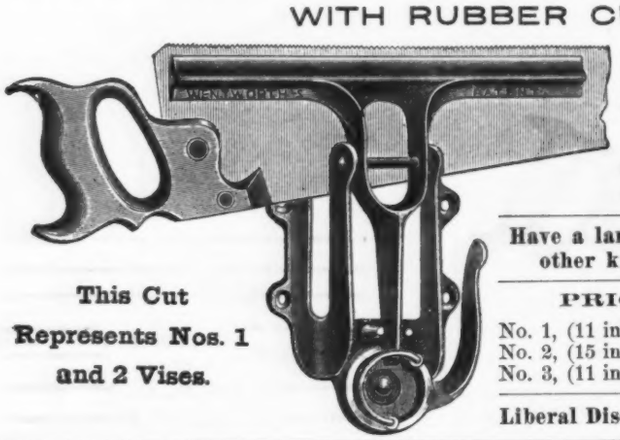


Cellar Box Cotters.

BRANCHES AT
32 So. Market Street, BOSTON, MASS.
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Wentworth's Patent Noiseless Saw Vises,

WITH RUBBER CUSHIONED JAWS,



This Cut Represents Nos. 1 and 2 Vises.

Prevent all vibration and render Saw Filing Noiseless.

Will make no more noise than filing on a solid piece of Iron.

Have a larger sale than all other kinds combined.

PRICE LIST.

	PER DOZ.
No. 1, (11 inch Jaws), -	$15.00
No. 2, (15 inch Jaws), -	21.00
No. 3, (11 inch Jaws), -	18.00

Liberal Discount to the Trade.



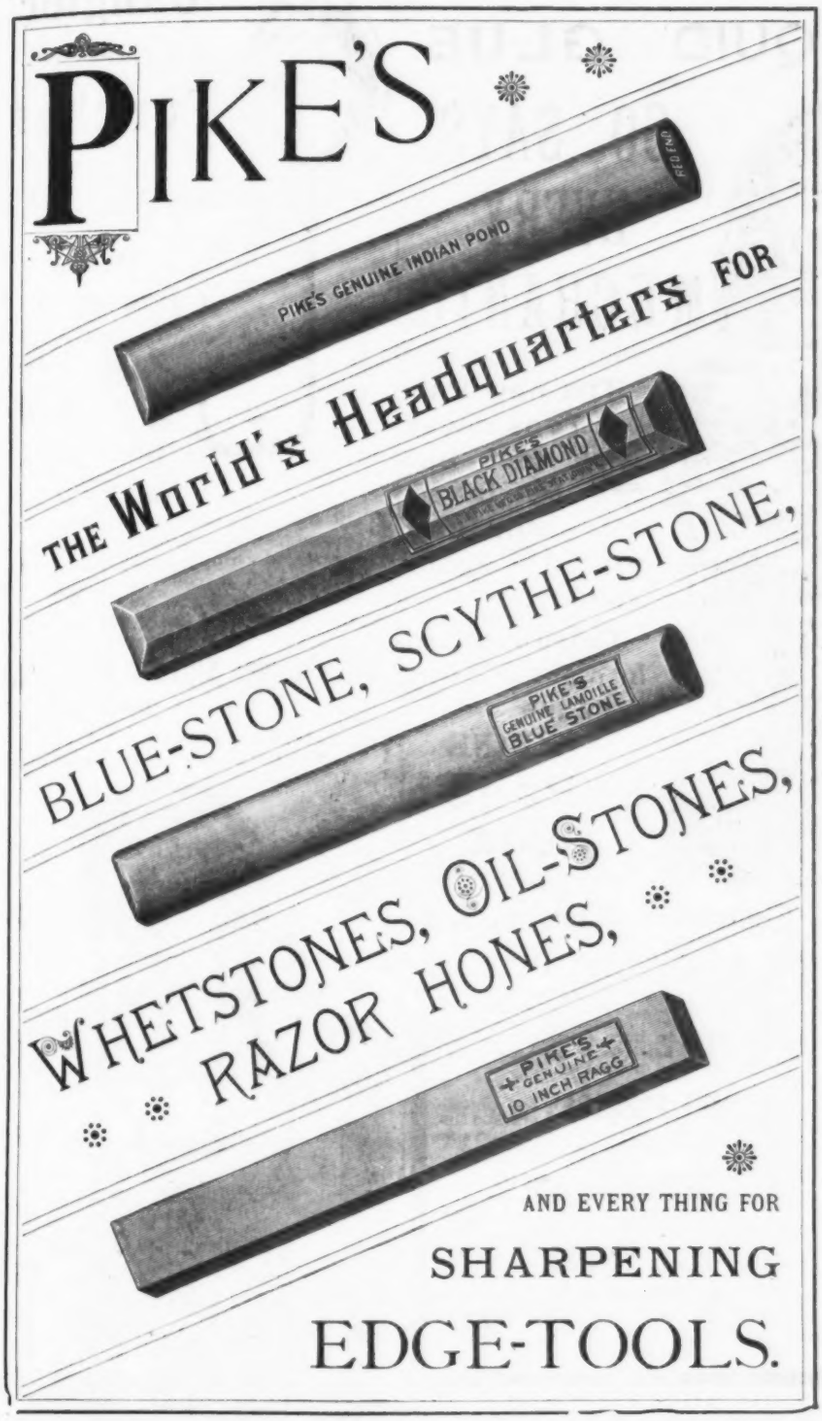
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Sold by all the Leading Jobbers of General Hardware at Factory Prices.

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If you **want the best Scythe-stones** buy the following celebrated brands:—The **"Indian Pond Red Ends,"** which have been made for about 70 years, and the sale of them extends to-day all over the world, and the demand for this stone exceeds all others. They are quick cutting, strong and do not glaze. The **"Lamoille Scythe-stone"** is also well-known, and has the reputation of being the best stone in the world to give a keen, smooth edge. The **"Black Diamond Scythe-stone"** is of the same grit, but superior finish, and is the handsomest scythe-stone in the market. The **"Ragg," "Willoughby Lake." "Green Mountain," "Diamond Grit," "White Mountain," "Farmer's Choice,"** and **"Extra Quinnebaug"** are all choice stone, coming from the best quarries which have been discovered in long years of effort and experience. These stones are carefully selected and handsomely packed and are sure to sell with satisfaction and profit.

THIS IS THE "OLD RELIABLE" DOUBLE ACTION

RATCHET SCREW DRIVER

One of the Very Best Tools Ever Invented.

It Combines greater Strength, Convenience and Durability than was ever obtained in a Common Driver

Gives Perfect Satisfaction. Sells Readily.



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Manufactured by **CAY & PARSONS,** - Augusta, Maine, U. S. A.

JOHN H. GRAHAM & Co., Agents, 113 Chambers Street, New York.





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COLUMBIANA OHIO

Manufacturers of all kinds of

Iron Pumps,

Pitcher, Cistern, Well and Force.



Satisfaction guaranteed. Send for Illustrated Catalogue and Price List.



Cheap Printing Doityourself. Card press $3. Circular press $8. Size for a newspaper $44. Everything easy, printed rules. Send 2 stamps for catalogue of presses, type &c., to factory. KELSEY & CO. Meriden, Conn.

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LePAGE'S LIQUID GLUE.

IN THE NEW PATENT CANS.



SO SAYS EVERY MECHANIC.

The new Patent Tops never stick fast but can be taken off easily and put on again quickly.

These cans are furnished only with the

GENUINE LePage's GLUE

MANUFACTURED BY THE

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NEW YORK OFFICE, 95 Reade and 113 Chambers Sts.



RELIABLE

Torches,
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Paint Burners.

TORCHES to burn Gasoline and Oil. **500,000 in use.** Not affected by wind or weather.

GASOLINE FURNACES for plumbers' and tinners' use. Powerful flame. Removable melting pot. Wind does not affect them.

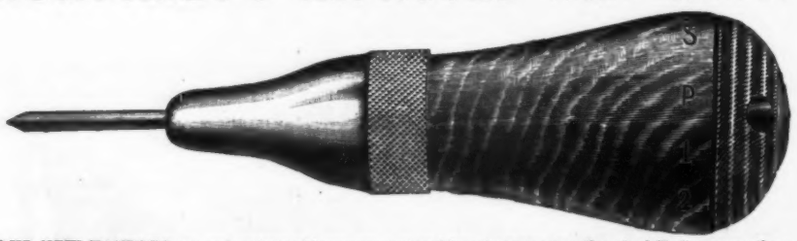
GASOLINE PAINT BURNERS. Steel bodies. Light and strong. Adjustable burner. *All Goods Guaranteed.*

SOLE MAKERS

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HUMPHREY'S IMPROVED AWL HAFT.



OUR NEW HANDLE has many points of improvement and beauty over any other Awl Haft now on the market. The metal portions are nickel, making a fine contrast with the fancy wood of the handle. The Awl has a square shank, which prevents turning, and it cannot pull through the cap when used in the hardest wood. The tools, 8 awls, 1 screw driver and 1 point, are held in separate cells under the ring at the top of the handle. The ring has one hole in it, which when revolved passes over each cell containing the tools, and is automatically locked at any desired point. It also forms a covering for all the tools when not in use. *Send for prices.*

HUMPHREY TOOL CO., Warren, Mass.



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Strap Hinge Manufacturers,

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Dangler
Electric
Torches
FOR
GASOLINE
OR
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14 JETS OF LIGHT

3 to 6 INCHES LONG.

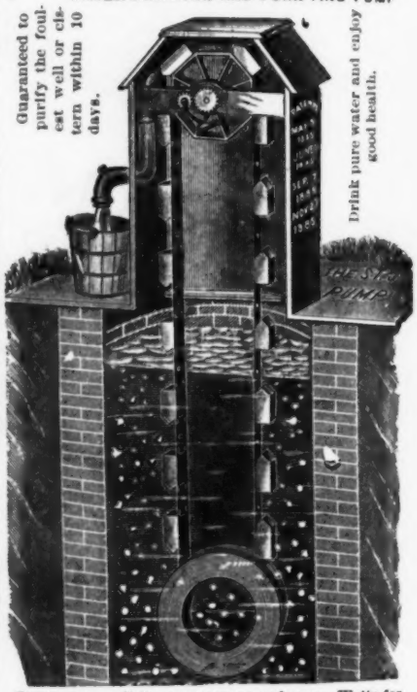
FOR lighting manufacturing establishments, such as Rolling Mills, Foundries, Machine Shops, Engine Rooms, &c., &c., with a convenient, portable, brilliant, steady light, and by cheaper means than by Coal Gas.

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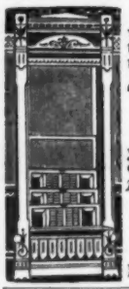
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THE CELEBRATED PERFECTION WATER-ELEVATOR AND PURIFYING PUMP



Dealers, we solicit your correspondence. Write for our circulars and price list. Address THE ST. JOSEPH PUMP CO., ST. JOSEPH, MO. U. S. A.



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you will miss it in *style, quality, durability, convenience and price.* Agents wanted.

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The Eclipse Spiral Screw Driver

THE BEST MADE.

Pacific Coast Trade supplied by

S. P. & W. H. SMITH

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Warranted Better than the Best

ENGLISH ANVIL

Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough *untempered steel*, never to break or bend. *Only Anvil made in United States fully warranted as above.*

FISHER DOUBLE-SCREW VISE

IS FULLY WARRANTED STRONGER THAN ANY OTHER LEG VISE, AND ALWAYS PARALLEL. Is the best Vise for Machine Shops and Blacksmiths, and for all heavy work. ACCURATE AND DURABLE. Send for Circular.

ESTABLISHED 1843.

MORE THAN 200 DIFFERENT PATTERNS.

None Genuine without our Trade-Mark.

EAGLE and "FISHER" Stamp.



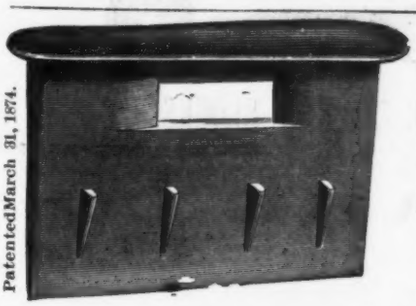
EAGLE ANVIL WORKS, - Trenton, N. J.



Brick Pointing AND Garden Trowels

BRADLEY & PIERSON MFG. CO.,

No. 135 Duane Street, - New York.



BEWARE.

Several styles of axe wedges have been put on the market the past year or two, all of which, so far as I know, are infringements of my patent. *All parties are hereby warned* against selling or using such wedges. One suit has been settled in my favor, another settled without suit, and other parties will be called to account soon. I still manufacture and sell the above, which has more practical merit than any other thus far made.

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RAPID CORK PULLER.

(Pat. applied for.)

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SIMPLEST AND CHEAPEST.

Will not break bottles. Cuts wires and pulls cork with one motion of the hand.

Durable and Compact.

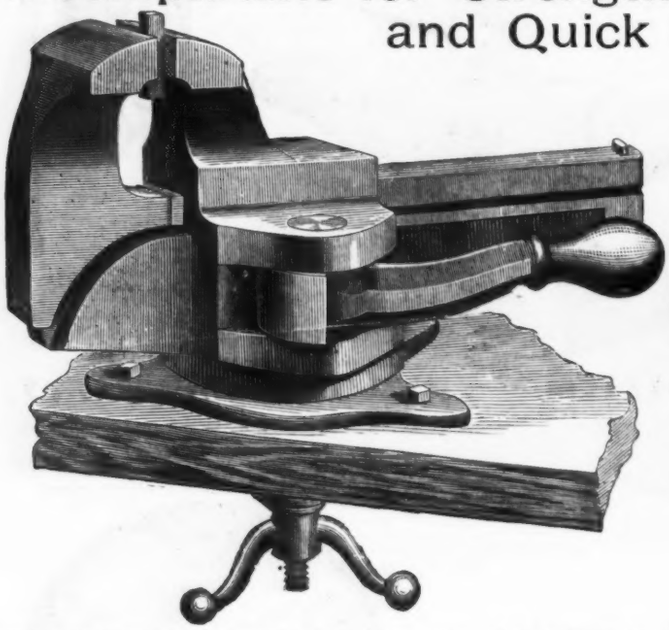
A GOOD SELLER.

Prices quoted on Application.

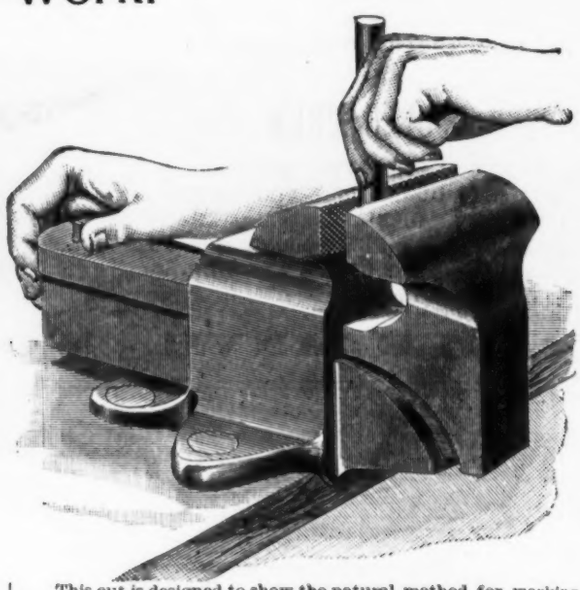
STEPHENS' PATENT VISES.

Quick Adjusting Cam and Toggle-Joint. Stationary or Patent Swivel Bases.

Incomparable for Strength, Durability, Firm-Hold and Quick Work.



Made both in FLAT and SWIVEL in 2 in., 2¾ in., 3½ in., 4½ in., 5½ in., 6½ in. width of Jaw.



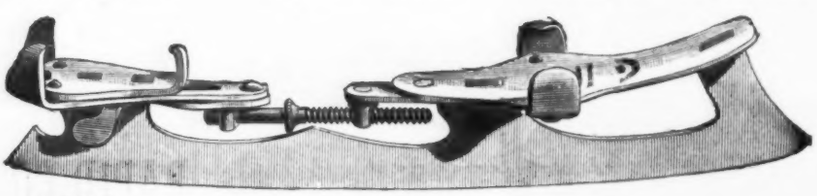
This cut is designed to show the natural method for working this vise and the EASE and FACILITY with which it is *opened* and *closed*.

ALSO TAPER JAWS, PIPE GRIPS AND OTHER ATTACHMENTS.

TOWER & LYON, Manufacturers, - - 95 Chambers St., New York.

UNION LOCK LEVER ICE SKATES.

An entirely new line. Superior Goods. Prices to meet Competition.

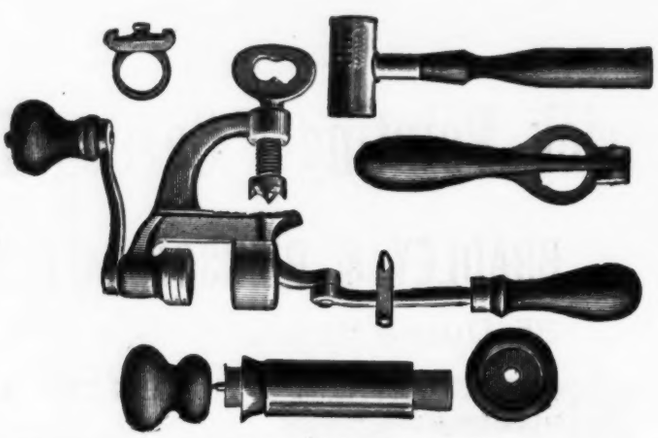


Dog Collars IN 600 STYLES, Many New, AND **DOG Muzzles.**



Gun Implements.

A complete line, best quality and finest finish.



NEW AND COMPLETE LINE PATENT OVAL EDGE TACKLE BLOCKS.

MANUFACTURED BY THE

UNION HARDWARE CO.,

Torrington, Conn.

NEW YORK OFFICE in charge of TOWER & LYON.

The Le Page Company's Improved Process Liquid Fish Glues.



Be sure the vignette and signature of WM. N. LE PAGE are on every package.

WM. N. LE PAGE is the original inventor of Preserved Liquid Fish Glue, and of the New and Improved Process by which this glue is manufactured, producing the finest, clearest and strongest glue in use.

Our new cans, with patent cap and fastening, have important advantages.

For the convenience of dealers in exhibiting and selling our Improved Process Glues, we have prepared WIRE STANDS of neat design, for use on the counters or in the show window. See illustrated price lists.



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Pattern, Penetration, Velocity and Cleanliness are combined in

The Peters Cartridges

THE PETERS CARTRIDGE CO., CINCINNATI, OHIO.

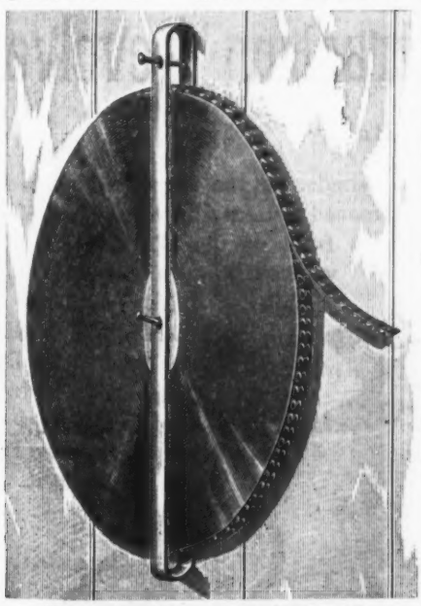
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The "Prize" Paper Shells,

thoroughly WATERPROOFED, STRONG and GAS TIGHT, ATTRACTIVE, RELOADABLE MANY TIMES, have EXTRA STRENGTH PRIMERS, no MISS or HANG FIRE.

Samples, Price-Lists and Discounts to the Trade upon Application.

CARY'S UNIVERSAL METAL STRAP.



Showing Reel Hung Up Ready for Use.

A SUBSTITUTE for STRAP IRON, Wood Straps, Wire and other material

Used for binding Packing Cases,

—ETC.—

A CONTINUOUS METAL STRAP

—PUT UP IN—

Coils of 300 Feet in Length,

AND PACKED IN

Cases Containing 20 Reels Each

Made in different Widths and Gauges.

Six U. S. Patents on Bands, Joints and Reels. Patented in the Principal Foreign Countries.

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Belt Hooks
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Spring Keys,
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and everything pertaining to wire bending.



CABINET MAKERS' CLAMP.



MANUFACTURERS OF

Spoke Shaves, Carpenters' Clamps, Parlor Door Hangers, Twist Drill Bits for Wood, Adjustable Clamps, Standard Clamps, Adjustable Monkey Wrenches, Machinists' Clamps.

THE CINCINNATI TOOL CO., Cincinnati, Ohio, U. S.

COLBY VENTILATORS



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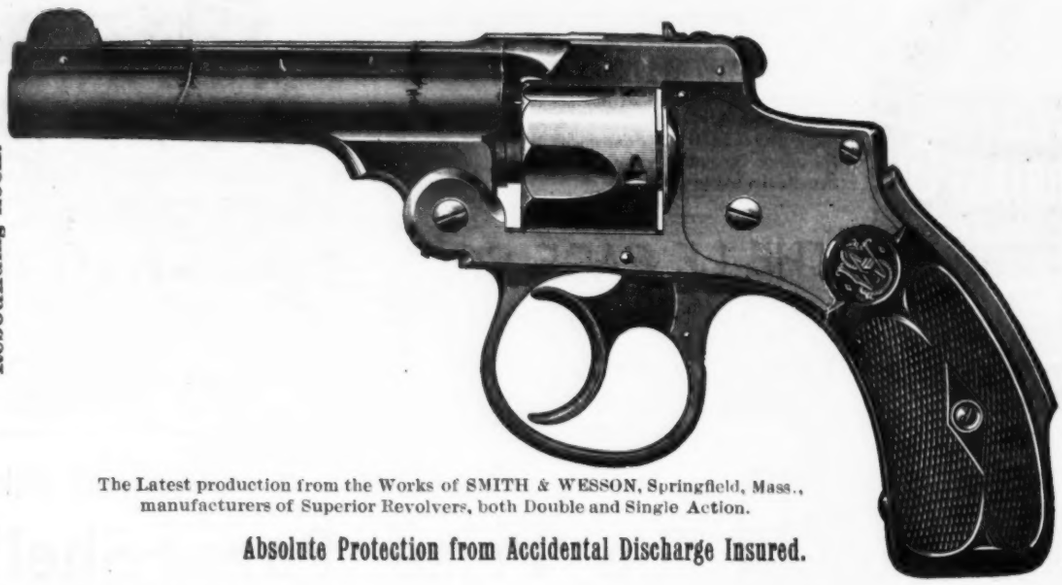
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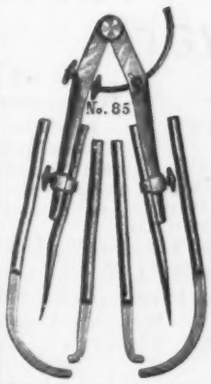
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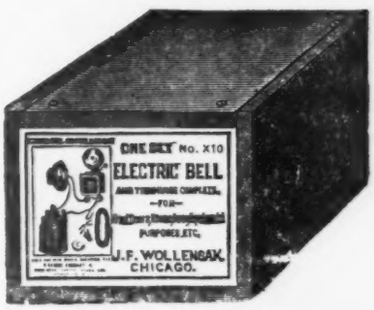
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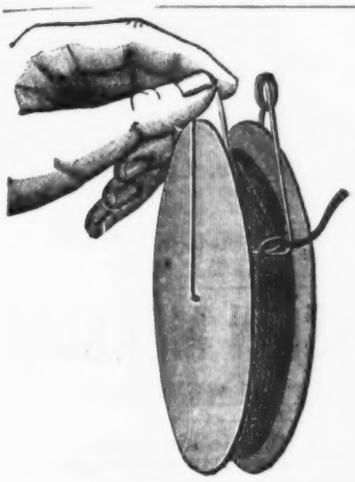


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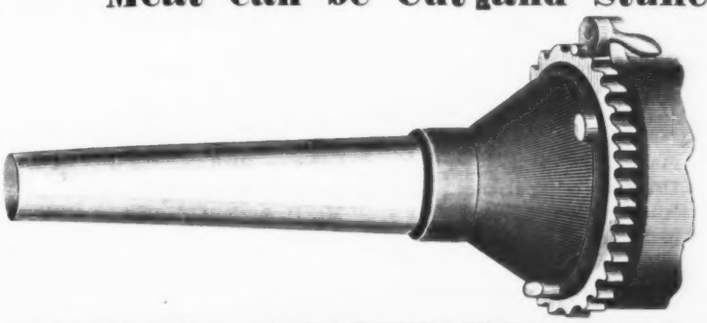
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" 124,	40-inch Fly-Wheel,	300 "		per hour,	each,	25.00
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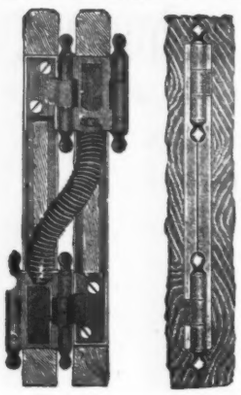
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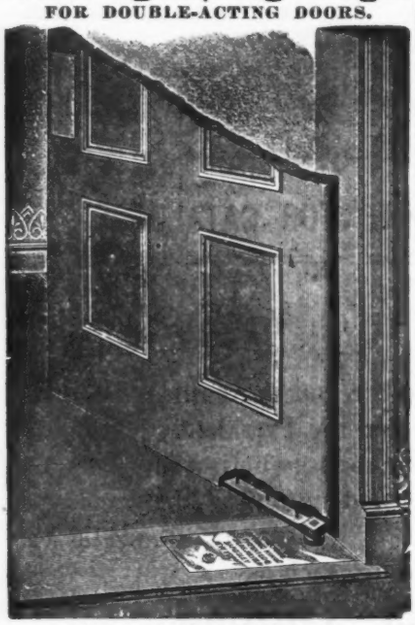
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BY WM. H. MAHER.

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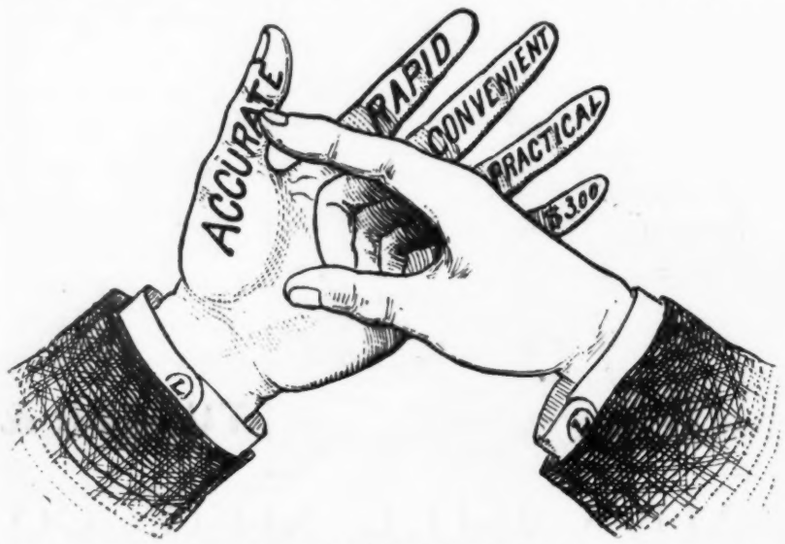
On Buying and Selling Goods, Selling Goods on the Road, Business Correspondence, Drumming, and all Matters Pertaining to Business.

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The First Step.
Taking Hold.
The Retail Clerk.
A Permanent Situation.
Personal Expenses.
Lessening Competition.
"Telling Tales Out of School,"
Anchors.
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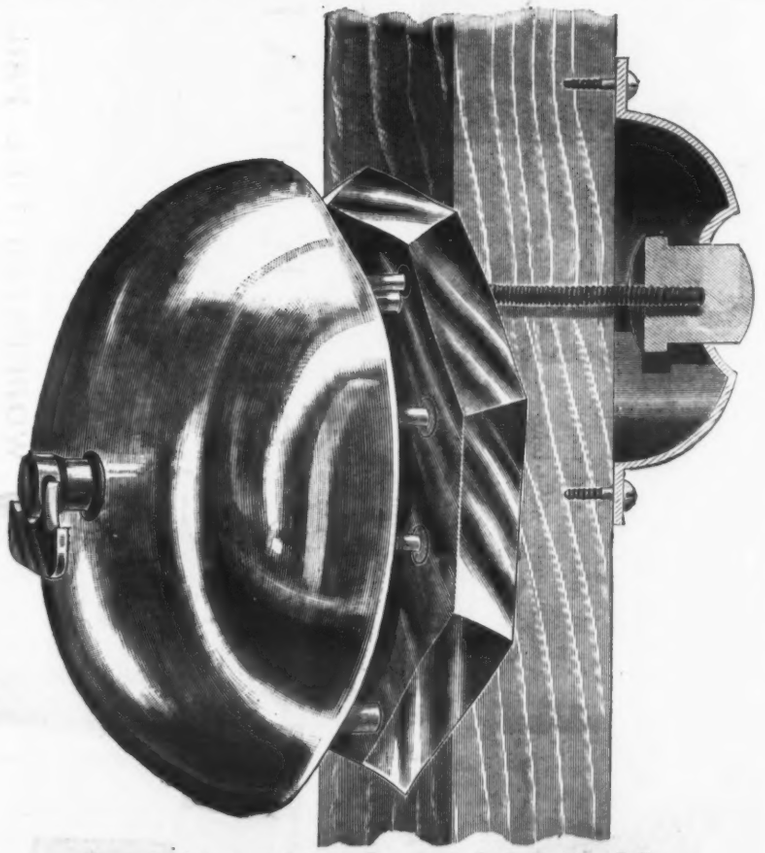
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Nos. 10 and 11.

They have *negative movements*, that is, are required to be *wound up*. There is *no defacing them when winding them*, as the *only part* that is *touched* is the *arbor key* on *end of winding arbor*. They have *merits never before brought forth in a mechanical push button bell*, viz. : *Full power* is given over *all* "*lost motion*" or "*back slack*" by an adjustable push rod. All *master craftsmen* will appreciate this, as they are aware *lost motion* will occur unless there is a way to *obviate it*. There is *no dropping out of push rod or losing push button* when the bell hanger or carpenter is *putting them up*, as *each is secured by a thread cut at each end of push rod*. There are *no spiral springs* about them, no *twisting off thread* on *end of arbor* or breaking of *springs*. They have *no wire "pinion" geers to come apart*. All our "*pinion*" *geers* are *solid steel*. There is *no straightening* of *Push Rods*, saving *valuable time* to *Carpenter* and *Bell Hanger*.

Our Nos. **1, 2, 10** and **11 Bells** are **Negative Bells**, *i. e.*, they **have to be wound up. They can be used on the door,** on the **side** of **the casing** of **the door, over the door** or **in the distance,** but we **advise** the **public not to be deceived** in the **use of a Negative Bell** for **heigth** or **distance,** *i. e.*, a **bell** that **that has to be wound up,** for our experience of many years (as we are no juveniles) in the bell business has **taught us** that a **bell** that **winds up** is **only fit for local use,** for if **put out** of **reach** and **stools** or **step-ladders are used** in **order** to **get at them** to **wind them up** when **run down,** and **they are apt to be so when most needed, they become a nuisance rather than a comfort or pleasure.** The **only bells** of **our make we would recommend** for **distance** are **our perpetual or positive movement bells,** which are Nos **5, 6 and 8.** These **never require any attention after once properly hung** and **can be used any distance.** There is **no winding to them.** They are the only reliable positive movement spring bells on the market; they have no double back action or spiral springs about them and never miss an alarm.

We believe in **dealing** in **facts with the trade** rather than putting **trash goods** on the **market** and **impose on the public** for the **sole purpose** of **gain** rather than **presenting merits** and **first-class goods.**

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Before getting **LOADED** with **Table Bells** wait until you have seen the **latest** and **best,** one **that gives** the **"electric" sound** and **does not have to be wound up.** There is **no tarnishing them** or the **nuisance** of **having** to **wind them,** as they are **positive** or **perpetual motion bells.**

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Simply by a mechanical device the nearest to *perpetual motion* that has ever been found to be *practical*.

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They will outwear all other bells on the market, owing to their construction; they are *simple, solid, practical* and made of the *best material* and in the *best workman-like manner*. We make *no "trash goods."* They are the work of *master craftsmen*. *All our goods are warranted. Any imperfection will be made good at our expense.*

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They cost no more than any first-class bell, and when once placed in position *that ends all expense, care or trouble*, and are not affected by heat, cold, dust or moisture.

"CAN THEY BE PUT UP ANYWHERE?"

Yes, and in any position or place, and will work with *any pull or lever. Old door pulls or levers work as well as new ones.* Old trimmings can be used without making any extra expense or defacing your doors or house in any manner. They are made in sizes from 2½ inches and upwards to meet all demands of the trade. *They are the handsomest bells on the market.*

To comply with the wants of the trade we classify our bells as follows:

No. 1 Bell has a *negative movement* and *has to be wound up*. It has a brass bell and japan base, and can be used on the door or over it the same as No. 3 and 4 Bells are used.

No. 2 Bell has a *negative movement* same as No. 1, except it has a nickel bell and base. Used the same as No. 3 and 4.

Nos. 3 and 4 Bells are positive or perpetual movements and require no attention after placed in position. They work on centre of door with any manufacturers' Levers, old or new, and over the door with any manufacturers' Pulls, old or new.

No. 5 Bell has a *positive movement* and is for a **long or short range, no limit to distance.** This bell is brass, with japan base,

No. 6 Bell has a *positive movement* like No. 5, except it has a nickel bell and base, long or short range.

No. 7 Bell has a *positive movment* finished only in nickel and used for *hospitals and sick rooms*.

No. 8 Bell has a *positive movement*, is six inch, finished in brass. This is used for elevators mines, toboggans, double-runner sleds, &c.

No. 9 Bell is a ten inch bell, used for fire alarm in hotels, or on fire apparatus of all kinds, cable or motor cars and school houses. Made only to order,

No. 10 is a *Push Bell*, japan base, brass bell and *negative movement—i. e.*, has to be wound up.

No 11 is a *Push Bell*, has a japan base, nickel bell, and a *negative movement—i. e., has to be wound up.*

No. 12 is a Bicycle Bell, finished only in nickel. The best Bicycle Bell ever put on the market. It has a *positive* or *perpetual movement.*

"EUREKA" DOOR BELL COMPANY,

86 BEVERLY ST., BOSTON, MASS.

STEAM GAUGE & LANTERN CO., Syracuse, N.Y.

Western Branch : 25 Lake Street, Chicago, Ill.

—MANUFACTURERS OF—

Standard Tubular Lamps and Lanterns.

THE BEST IN THE WORLD.



Globe Street Lamp.

Tubular Lanterns,

Tubular Street Lamps,

Tubular Hanging Lamps,

Tubular Station Lamps,

Tubular Driving Lamps, etc.



Tubular Square Street Lamp.



No. 1050. Large Retinned Hopper.

Waddel's Improved Coffee Mills

Are well made and finished throughout, and possess desirable features not found in other goods.

Order them from your jobber, and your customers will take them in preference to other mills.



No. 40. Castings Bronzed and Amber Lacquered.

JNO. M. WADDEL MFG. CO.,

Manufacturers Coffee Mills, Surprise Rat Traps and Specialties,

GREENFIELD, OHIO.

SPRING BEARING FOR WHEELBARROWS.



The only *practical* spring for the purpose. For full particulars, address,

D. J. C. ARNOLD, New London, Ohio.

RICE FIRE PAIL.



No other contains its chemicals forever dry in compartments. None other mingles its chemicals in solution at the will of the operator. Ready for instant use. Cannot freeze. Cannot diminish in volume by evaporation. Cannot deteriorate with age. All insurance men approve. No acid in the compartment pail. It will not affect the skin, does not injure textile goods nor alter colors. Instantly extinguishes the fiercest fire.

WORCESTER FIRE PAIL CO.,

WORCESTER, MASS.

United States Supply Co. 51 John St., New York Agents.

The F. F. ADAMS CO.,

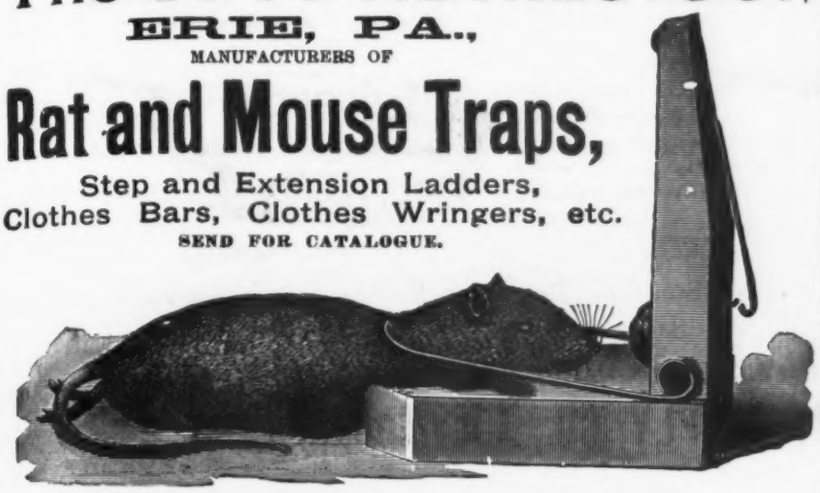
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MANUFACTURERS OF

Rat and Mouse Traps,

Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

SEND FOR CATALOGUE.



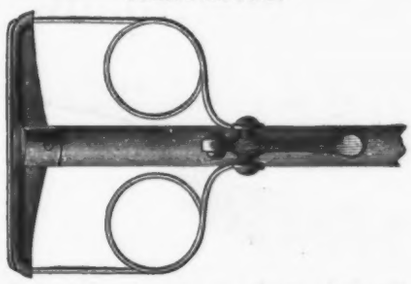


WHEELER PATENT CAN OPENER COMPANY.

Surpasses all other instruments for opening cans, irrespective of shape or size.
They are well recommended by those who have them in use. It is the only can opener that will cut off the top of paint pails. There are hundreds in use for this purpose.
It cuts stove pipe, tin pipe, &c., to perfection. The blade is made of the best cutlery steel, and the spring is of the most reliable make. For sale by all wholesale hardware dealers. Samples will be forwarded to any address on receipt of 50c. Address **Wheeler Patent Can Opener Co.,** 102 South Main St., St. Louis, Mo.

The TROJAN MOP STICK.

PATENT PENDING.



We call special attention to our method of lapping the ends of the wire around the arms of the lever. It is there to stay. If as good a Mop Stick is on the market we have never seen or heard of it. Send for Prices.

PEABODY & PARKS, Troy, N. Y.

OSBORNE'S PATENT

Meat Juice Presses.



PRICES:

No. 1, $1.25. No. 2, $1.75. No. 2, with clamp, $2.00. No. 3, $3.50. No. 4, $5.00. No. 5, $10.00.

DISCOUNT TO THE TRADE.

These presses are designed to extract the juice from freshly **BROILED STEAK.** The yield should be about six ounces from one pound of round steak, costing from six to twelve cents. It has been found that **BEEF TEA,** however made, contains no nourishment. The albumen coagulates at so low a temperature, nearly 100° below the boiling point, that it is unsafe to warm the expressed juice above the temperature of the body. Tepid water may be added, but avoid **HOT WATER.** Ask your physician about it.

COMMON MOUSE TRAPS
BEST FOR USE!

Ripley Mfg. Co., Unionville, Conn



Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks, Magnetic Tack Hammers, Mallets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side Up Lap Board.

EDWARD S. HOTCHKISS.

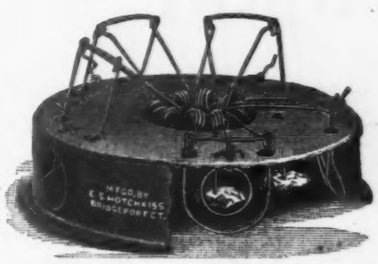
BRIDGEPORT, CONN.

Manufacturer of

HARDWARE.

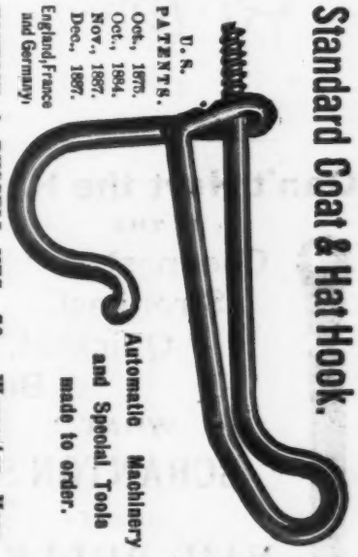
Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches, Horse and Toilet Clippers, Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016

Standard Coat & Hat Hook.



U. S. PATENTS.
Oct., 1876.
Oct., 1884.
Nov., 1887.
Dec., 1887.
England, France and Germany.

Automatic Machinery and Special Tools made to order.

HAMBLIN & RUSSELL MFG. CO., Worcester, Mass.
HARDWARE SPECIALTIES AND STANDARD WIRE GOODS.

"CHAMPION" KEYLESS LOCKS.



For Drawers Closets, Lockers, Chests, Boxes, Iron Doors, &c.

More durable, more secure and more convenient than the best Keyed Locks for many purposes, and as easily put on. Sold by leading jobbers. For illustrated catalogue.

Address

MILLER LOCK CO., Manfcrs.,
Frankford, Philadelphia.

"NEVER-BREAK" COLD HANDLE STEEL SPIDERS "NEVER-BREAK"

Without Rivets.



All One Piece.

The only **One Piece** spider with cold handle is the **"Never-Break."**

The **one** absolutely **clean** handle. The only **perfectly** polished **steel** goods are the **"Never-Break."**

Riveted Handle.



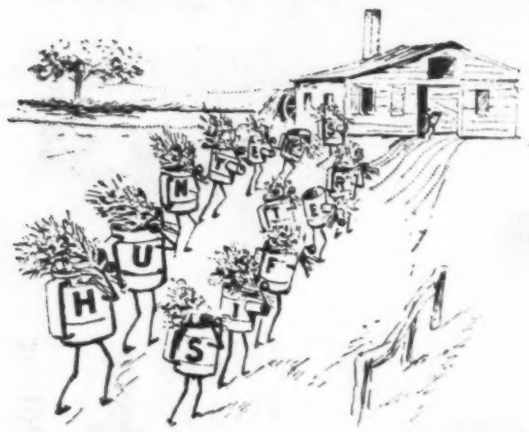
Only Two Pieces.

Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

A FULL ASSORTMENT OF WROUGHT STEEL HOLLOW WARE.

Manufactured only by **THE BRONSON SUPPLY CO., Cleveland, Ohio.** N. Y. Office, 51 Cliff St.

"WHEAT WHEN READY TO BE GROUND"



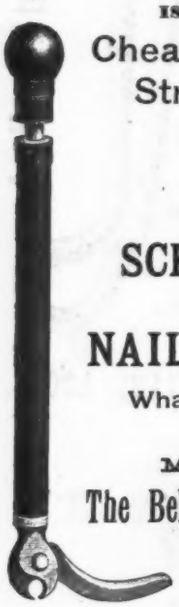
Must be carried to the mill to be made into flour, as every one knows, but it is highly probable that a good portion of the population of the U. S. is not aware of the fact that such flour would still further be improved if first sifted in a "HUNTER'S SIFTER" before being used. Any dealer that will explain this fact to his lady customers can greatly increase his trade by offering the "Hunter Sifter" as a leader. Write us for particulars and ascertain what we can do for you.

THE FRED J. MEYERS M'F'G CO.,
COVINGTON, KY.

Can't Hurt the Hand

IS THE

Cheapest,
Strongest,
Quickest,
Best



WHAT?

SCRANTON'S

IMPROVED

NAIL PULLER.

What more do you want?

MADE BY

The Belden Machine Co.,

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Builders' Hardware. A manual for Architects, Builders and Housefurnishers. By CLARENCE H. BLACKWELL. Illustrated. Cloth.....$6.00

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Wrought Steel Hollow Ware.



"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.



W. R. OSTRANDER & CO.,

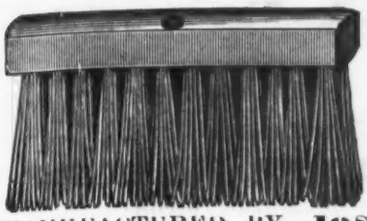
195 and 197 FULTON ST., NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.





PUSH BROOMS of every kind and description of Rattan, Steel Wire and Bass, for all uses, Stable, Street, Bloom, Chill, Frog, Switch, Shop and Scrubbing Work. Brooms for heavy and light work. Brushes of all kinds, for Casting, Moulders, Mill and special uses, &c., &c.

MANUFACTURED BY **JOSEPH LAY & CO., Ridgeville, Ind.** Send for Catalogue.



WE HAVE OFTEN

Been asked why we did not dwell more upon the excellent features of the "Wayne Washer" as other manufacturers are in the habit of doing. We answer that while we believe in "blowing our own horn," to a certain extent, we also think that too much of it has a tendency to react against those practicing it; besides, "The Wayne" needs only to be seen and tried to be appreciated.

Now, in order to make this "ad'v't" earn its cost will you write us, whereby you will gain some knowledge that would be appreciated by your customers were you to impart it to them, and which would prove profitable to you as well.

ANTHONY WAYNE MFG. CO., Fort Wayne, Ind.



SHERWOOD'S STANDARD WHITE LUSTRAL WIRE WARE

LUSTRAL WIRE

HOUSEHOLD GOODS

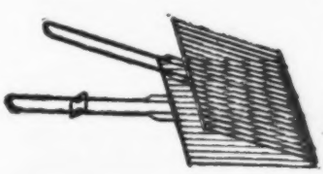
IN GREAT VARIETY.

MANUFACTURED BY

Woods, Sherwood & Co.

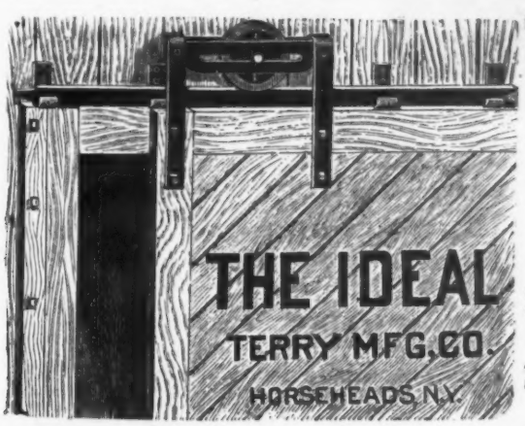
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THE IDEAL STEEL Anti-Friction Hanger.

Sure to Please the Trade.

Works VERY EASY, is STRONG and combines ALL the BEST Features of an Anti-Friction Hanger.

4-in. Wheel, 6-ft. Run, $15 per doz. pairs.
5-in. " 10-ft. " 18 " " "

Would be glad to quote you Prices.

TERRY MFG. CO., Horseheads, Chemung Co., N. Y.

THE LATEST! THE BEST!!

—STONE—

Self-Adjustable Clothes Wringer.

Different in principle and design from any Wringer in the market.



Send for price-list and terms.

THE STONE MFG. CO.,
Isaac D. Smead, Toledo, President,
COLUMBUS, OHIO.

BEST IN THE WORLD.



Neil's Self-Measuring Oil Tanks.

The Only Ones Perfectly Reliable.

For either store floors or basement use.

No Measures or Funnels Used.

Clean, rapid and accurate. Catalogues sent free

WM. NEIL & CO.,
—SOLE MANUFACTURES,—
11 and 13 Dearborn St., • Chicago, Ill., U. S. A

SASH WEIGHTS

E. E. BROWN & CO.,
McKean and Meadow Sts.,
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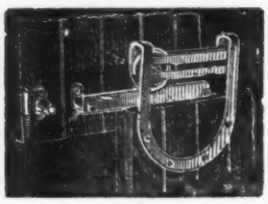
THE SWIFT MILL.

ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.



Lane's Measuring Faucet.



LANE'S PATENT STEEL DOOR HANGER.

The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line It is by far the most durable. It may be used with any track. It is always in order. LANE'S PATENT TRACK is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by **LANE BROS.,** Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street NEW YORK.

DON'T BUY A NEW LOCK, JUST BUY A DIFFERENT KEY.



A CHANGEABLE KEY
Self-Setting Combination LOCK.
ABSOLUTE SECURITY.

MANUFACTURED BY THE UNIVERSAL Lock Co. OF NEW YORK.

This lock differs from all others in the fact that it will set itself to any one of 4013 different keys with which the user may choose to lock it. Only the key used in locking will unlock it.

The advantage will naturally become apparent when for any reason whatever the user wishes to change the means of securing his premises, he need only buy a new key. Obviously as many different locks for securing the premises will be available as there are keys in the possession of the holder.

PRICE LIST.

No. 1 (with Chain).....	per dozen,	$24.00
" 1.....	"	21.00
" 2.....	"	18.00
" 3.....	"	15.00

Extra Keys, 10 cents each.

NOTE.—Keys numbered from 1 to 4013. inclusively.

—SALES DEPOTS:—

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KEYSTONE LOCK WORKS,

E. T. FRAIM, Lancaster, Pa., U. S. A.

MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS.** 44 different grades and sizes.

Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

SURPLESS, DUNN & ALDER,

General Agents. 97 Chambers St., New York.

ATTENTION.

CUSTOM HOUSE, PORTLAND, MAINE, July 13, 1890.

AMES SWORD CO., Chicopee, Mass.

GENTLEMEN: I am glad to learn that your locks are to be adopted by the Treasury Department for the bonded warehouses. The samples from your works sent here last fall were thoroughly tested during the winter and proved satisfactory.

Your obedient servant,

(Signed) CHAS. W. ROBERTS, Supt. of Warehouses.

PATENT PERFECTION PADLOCK,
MANUFACTURED BY
AMES SWORD CO., - Chicopee, Mass., U. S. A.

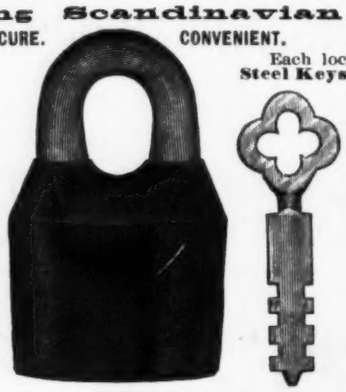
Self-Locking Scandinavian Padlocks.

NEW LINE. SECURE. CONVENIENT. DURABLE

In compliance with popular demands for a lower priced line of padlocks to work on our self-locking principle, we are now making a

Special, Cheap, New Line.

Self-Locking, with Maroon Finish and Polished Shackles



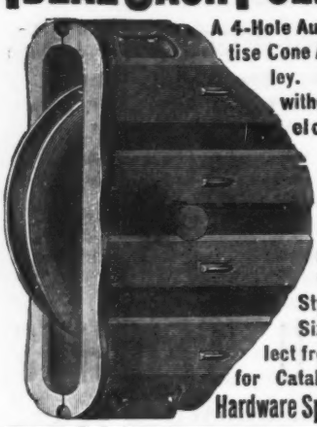
Each lock has two handsome **Cast Steel Keys** of unique design and light in weight, as shown on accompanying cut. This line is made especially for export and cheap trade.

Brass, Bronze Mal. Iron and Nickel Plated Self-Locking Scandinavian Padlocks.

W. DODMAN, Gen'l Agent,
103 Chambers Street, New York, N. Y.

Slaymaker, Barry & Co.
Manufacturers,
Lancaster, Pa., U. S. A.

IDEAL SASH PULLEY.



A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

STOVER MFG. CO.
145 River St., Freeport, Ill.

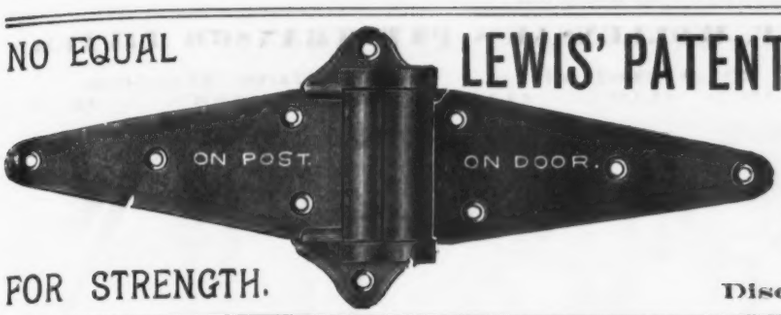


TRIUMPH CHAINS.

"TRIUMPH" WIRE CHAINS, Halter Chains, Dog Chains, Kennel Chains, Coil Chains, &c.; the most perfect Chains made for their various purposes; made of **Steel Wire** and possess great strength; much lighter than sheet metal or welded chains; no sharp edges; do not kink; no bad welds; in fact the most saleable and serviceable chains the trade can handle. Also "Monarch" Sash Chain, Plumbers' Safety Chains, &c. Send for catalogue.

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn.

NO EQUAL



FOR STRENGTH.

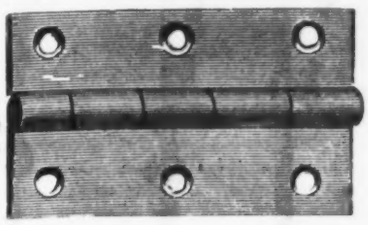
LEWIS' PATENT STRAP AND T HINGES

——MANUFACTURED BY——

E. B. LANMAN,

Columbus, Ohio.

Discounts mailed on application.



Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

Nos. 16 & 18 Chambers Street, New York.

MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY HARDWARE.

HARDWARE DEALERS

CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

MANUFACTURED ONLY BY

"THOMAS MORTON,"

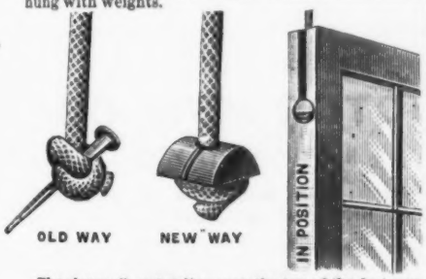
65 Elizabeth Street,

Write for Prices. **NEW YORK.**

The Detachable Empire Sash Cord Fastener

(Patent Applied for.)

The simplest and best method of attaching Sash Cords to Window Sashes ever invented, and a great saving in time and patience in putting in or taking out Window Sashes. Every window requires them that is hung with weights.



The sharp rib extending over the top of the fastener, through the centre, is by the weight of the sash caused to sink into the frame and thus hold from moving. The most useful invention for Window Sash ever put on the market. Every window requires them.

Reasons why you should use them: It costs less than one and one-half cents per Sash; requires no nails or screws; can be put in or taken out in less than one minute; prevents the knot from fraying out and getting between the sash and frame; does not split the sash like nails or screws; prevents the cord from running back into the weight pocket. Manufactured by the

Empire Portable Forge Co., Lansingburgh, N.Y., U. S. A.

Depot for N. Y. City Delivery, Surpless, Dunn & Alder 97 Chambers Street.

The English and American Mechanic. Comprising a collection of 3000 recipes, rules and tables designed for the use of every mechanic and manufacturer. Illustrated by B. FRANK VAN CLEVE. Cloth.....$1.50

For Sale by DAVID WILLIAMS, 66 & 68 Duane St., N. Y.

THE SMITH & EGGE MFG. CO.

BRIDGEPORT, CONN.





THE GIANT PAD LOCK.

Centennial Award. "Superior in Every Respect.

This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

THE GIANT METAL SASH CHAIN

is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."

ROMER & COMPANY, Manufacturers of PATENT

JAIL LOCKS, BRASS and IRON PADLOCKS,



DASH AND CARRIAGE LAMPS,

LANTERNS

Patent Horizontal Rim Cylinder Reversible Night Latches.

Illustrated Lists sent to the Trade on application.

275, 277 and 279 Passaic St., near Erie and D. L. & W. R. R. Depots, Newark, N. J.



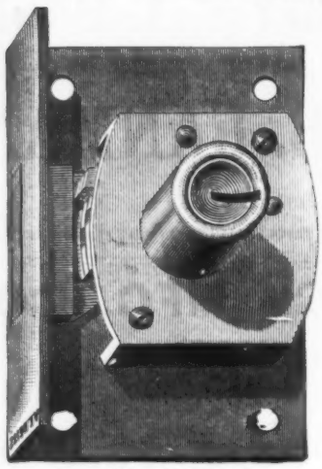
The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

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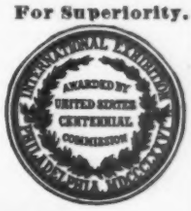
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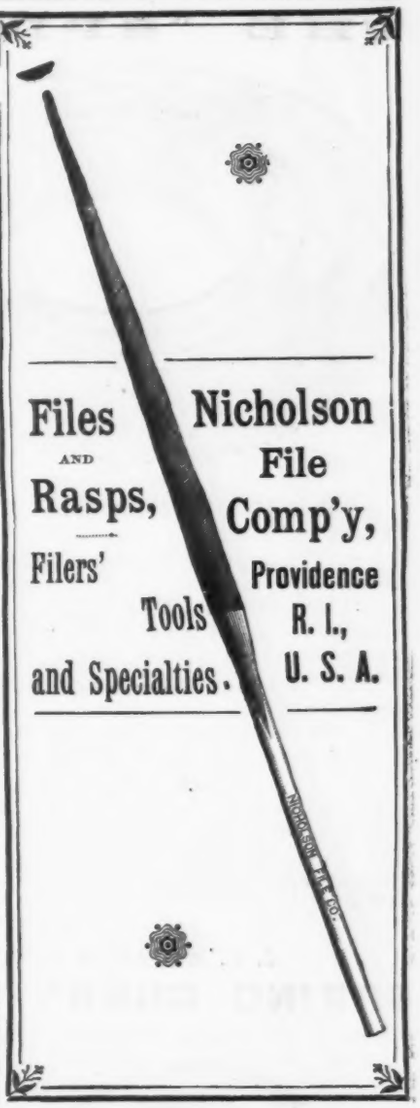
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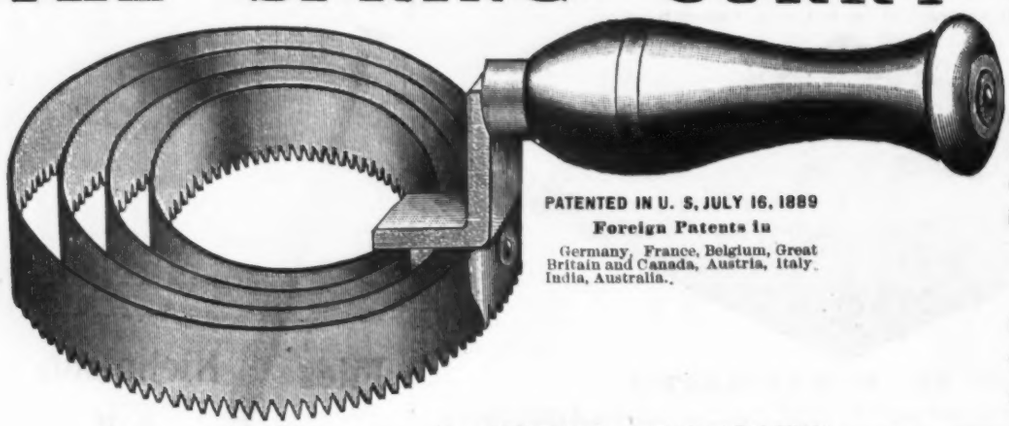


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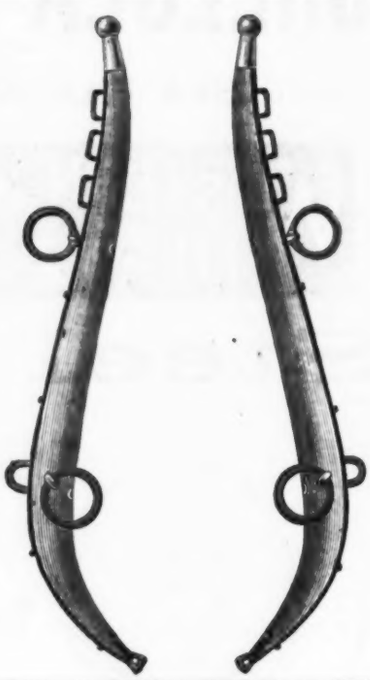
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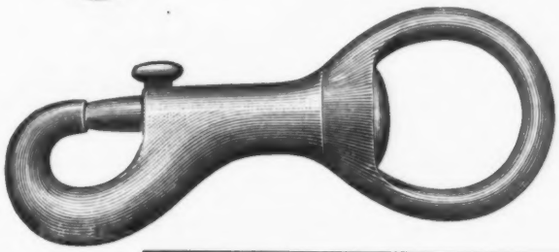
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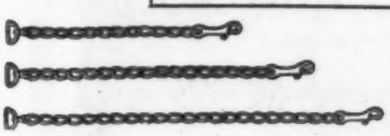




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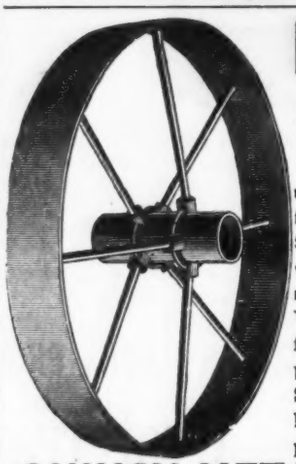
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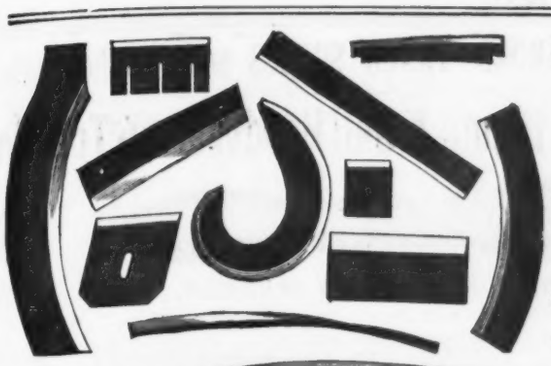
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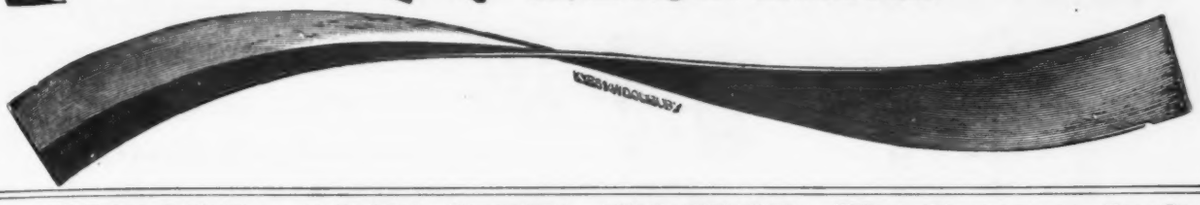
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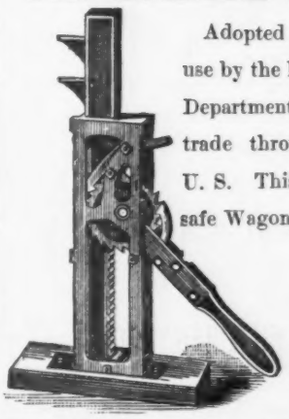
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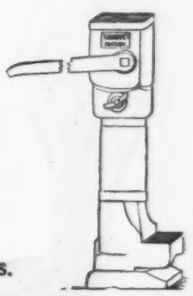
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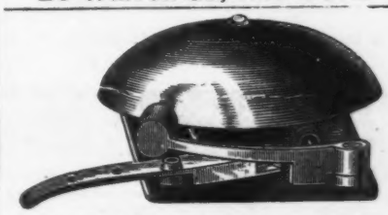


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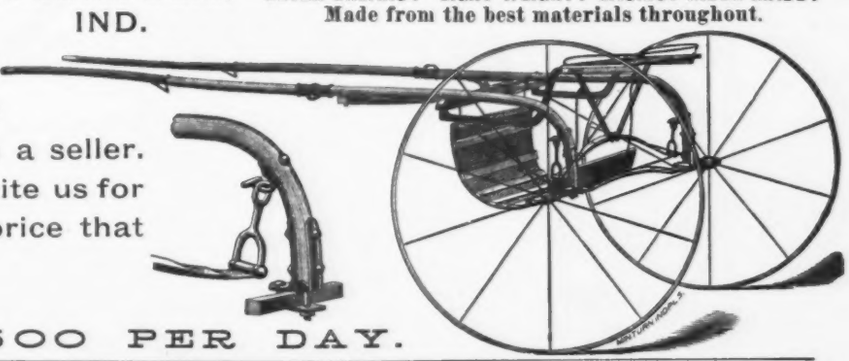
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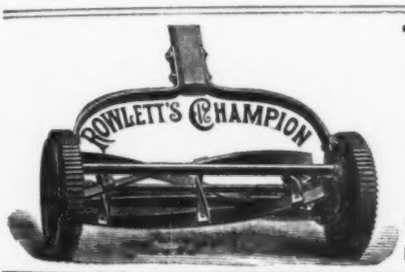
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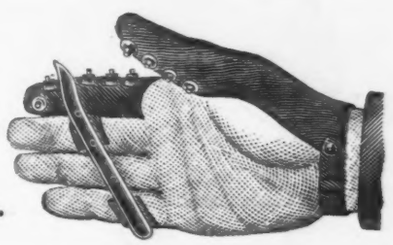
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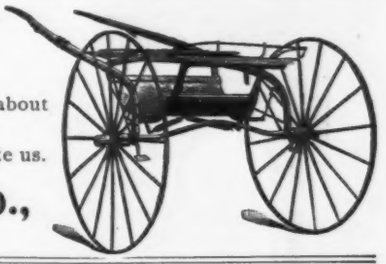
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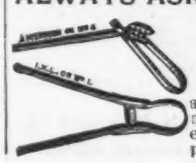


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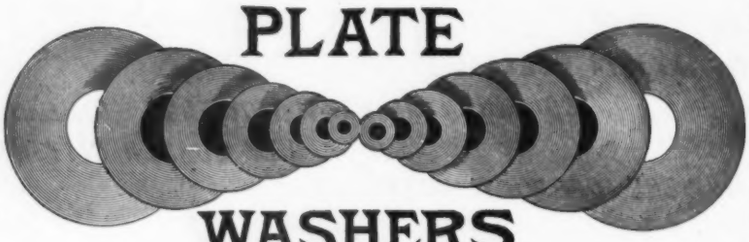


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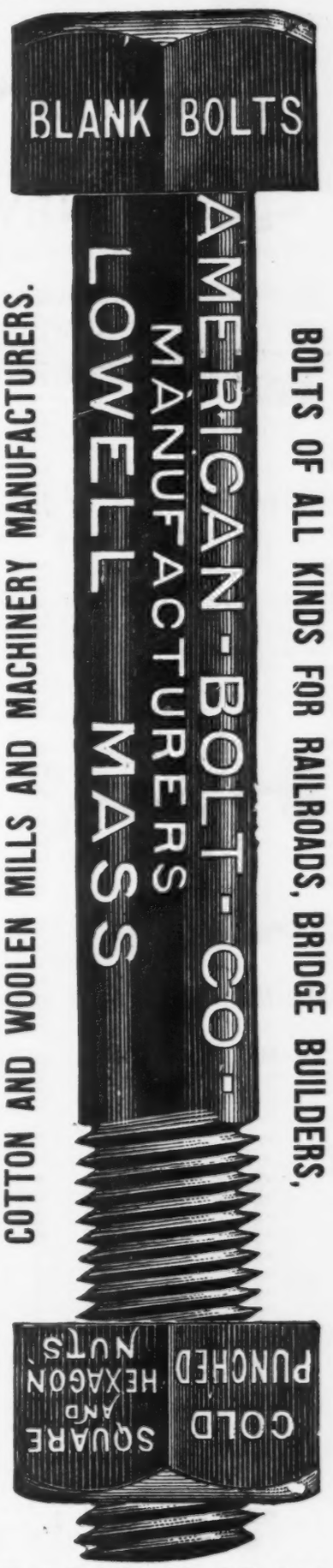
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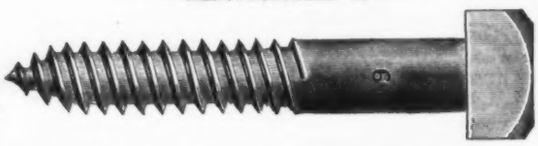
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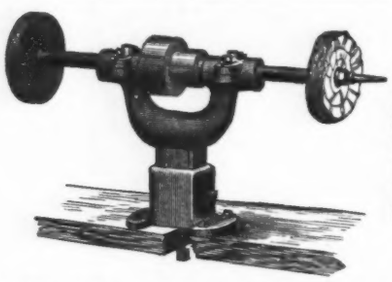
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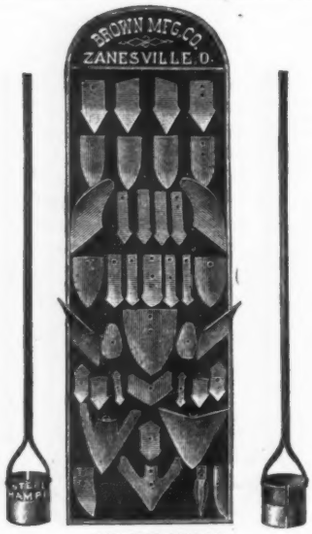


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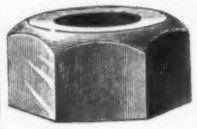
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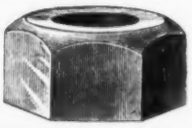
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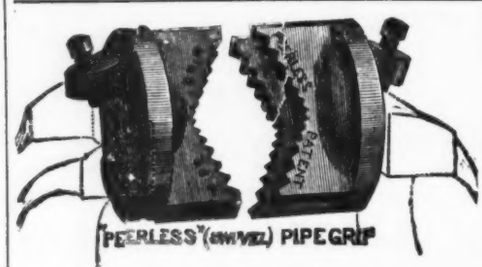
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Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron W'ks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Thos. D. West F'dry Co., Cleveland, O.
Watkins Chilled Plow Co., Watkins, N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Hendryx, Andrew B. & Co., New Haven, Conn

Chemicals and Apparatus.
Eimer & Amend, 205 Third ave., N. Y.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Clippers.
Lee, Jesse & Sons, Philadelphia, Pa.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.
Waddel, Jno. M. Mfg. Co., Greenfield, Ohio.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.
Samson Cordage Works, Boston, Mass.

Cork Pullers.
Greely, H. J., Boston, Mass.
Meriden Malleable Iron Co., Meriden, Conn.

Corn Shellers.
Blair, E., Bucyrus, Ohio.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Cinn., O.
Jersey City Galvanizing Co., Jersey City, N. J.
Miller, Jas. A. & Bro., Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Cottages, Portable.
Iron Cottage Co., Grand Rapids, Mich.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Seliers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N.Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Empire Knife Co., W. Winsted, Conn.
Foster Bros., Fulton, N. Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
Southington Cutlery Co., Southington, Conn.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Medford Fancy Goods Co., 44-46 Duane, N. Y
Union Hdw. Co., Torrington, Conn.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horsehead, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Barlass Bros., Janesville, Wis.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wells Mch. Works, Fostoria, Ohio.
Wiley & Russell Mfg. Co., Greenfield Mass.
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middle town, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Foster Bros., Fulton, N. Y.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 558 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevators, *Makers of.*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Wheels.
Diamond Mach. Co., Providence, R. I.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineering Specialties.
Curtis Regulator Co., Boston, Mass.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Poetter, Chr., Dortmund, Germany.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa,
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
Waite & Van Harlingen, Phila., Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Harrisburg Car Mfg. Co., Harrisbury, Pa.
Lane Bodly & Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless. Dunn & Alder, 97 Chamber N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fence Posts.
Smolley, Jno. G., Connersville, Ind.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.
Reynolds Bros., Columbus, Ohio.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son. Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.

(See Alphabetical Index, Page 118.)

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fruit Press.
Paine, Diehl & Co., Philadelphia, Pa.

Fuel Burner.
Aerated Fuel Co., Springfield, Mass.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
LePage Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.

Grinding Mills.
Hill, A. M., New Haven, Conn.

Grinding and Polishing Mchy.
Diamond Mach. Co., Providence R. I.
Star Machine Co., Philadelphia, Pa.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hair Crimpers.
Chicago Nickel Works, Chicago, Ill.

Hames.
Wilcox, Wm. Mfg. Co., Middletown, Ct.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
New Britain Hardware Mfg. Co., New Britain, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Salomon, L., 118 Chambers, New York.
Surpless, Dunn & Alder, 97 Chambers, N. Y.
Tommins & Adams, 116 Chambers, N.Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Campbell, John, Manchester, N. H.
Dunlap, C. W., 88 Chambers, N. Y.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Rex, A. C. & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co.. West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co.. St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman. 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Wister, Francis, Philadelphia.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan. Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Gill, Thompson C. & Co., Phila., Pa.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironware, Galvanized.
Hill, Jas. Mfg. Co., Providence, R. I.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
"Champion"
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
"Champion."

Lawn Sprinklers.
McGowan, J. H. Co., Cincinnati, O.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs. *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Romer & Co., Newark, N. J.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Lorine Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Knowles Loom W'ks, Worcester, Mass
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moers, E. M., Cincinnati, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis
National Machinery Co., Tiffin Ohio
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Pond Mch. Tool Co., N. Y.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Norfolk & Western R. R. Co.
Portland, Oregon.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Meat Presses.
Osborn, H. F., Newark, N. J.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Bionder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.

Molding Sand.
Paxson, J. W. & Co., Phila.

Mop Sticks.
Peabody & Parks, Troy, N. Y.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.
Graham, John H. & Co., 113 Chambers St., N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville Conn.

Oil Tanks.
Neil, Wm. & Co., Chicago, Ill.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.
Wilcox, Wm. Mfg. Co., Middletown, Ct.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co, Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."

Powder.
Laflin & Rand Powder Co., 29 Murray, N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y.
Diemelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Power Transmission Machinery
Hill Clutch Works, Cleveland, O.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Printing and Engraving.
Gies & Co., Buffalo, N. Y.

Printing Presses.
Kelsey & Co., Meriden, Conn.

Pulleys.
Menasha Wood Split Pulley Co., Menasha, Wis.

Pulley Coverings.
National Pulley Covering Co., Baltimore, Md.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Maslin, Jno. & Son, Jersey City, N. J.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Ripley & Bronson, St. Louis, Mo.
Valley Pump Works, Easthampton Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Columbiana Pump & Machine Co., Columbiana, Ohio
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn,

(See Alphabetical Index, Page 118.)

Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Schwarzenberg Bros. & Co.,Cleveland,O
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.
Waddel, Jno. M. Mfg. Co., Greenfield,O.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend, W. P. & Co., New Brighton, Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Creamer & Scott Co., Indianapolis, Ind.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Mumford, C. M., Springfield, Mass.
Stanley Rule & Level Co., 29 Chambers,

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass,
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co, Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls, N.Y
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Richle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Decatur Coffin Co., Decatur, Ill.
Eclipse.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
s, Wm. & Co., Inc. Phila. Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Empire Knife Co., West Winsted, Conn.
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Peck & Snyder, 124 Nassau, N. Y.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Hall, Elton & Co., Wallingford, Ct.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Malden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co,, Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cutters.
Whitman & Barnes Mfg. Co., Syrscuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Fittings.
Kuhn Bros., Dayton, Ohio.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton. N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Chess, Cook & Co., Pittsburgh, Pa.
Ohio.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Step Ladders, Railroad.
Coburn Trolley Track Mfg. Co., Worcester, Mass

Stocks and Dies.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co!, Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Butts & Ordway, Boston, Mass.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Cincinnati Tool Co., Cincinnati, Ohio.
Fray, Jno. S. & Co., Bridgeport, Conn
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trowels.
Bradley & Pierson Mfg. Co., 135 Duane, New York,

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.
Riehlé Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.
Sherwood Mfg. Co., Buffalo, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y.
Mason Regulator Co., Boston, Mass.

Ventilators.
Colby Hdw. & Electric Co., Chicago, Ill

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Mason Iron Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Washing Machines.
Wayne, Anthony Mfg. Co., Ft. Wayne, Ind.

Water Motors.
Belknap Motor Co., Portland, Me.

Wedges, Axe.
Wooster, F. V., Boston, Mass.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohia.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Howard & Morse, 45 Fulton, N. Y.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth Holders.
Mosford, John, Monroeville, O.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Howard & Morse, 45 Fulton, N. Y.
Spur Wire Fence Co., Chicago, Ill.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
Howard & Morse, 45 Fulton, N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester,
Wickwire Bros, Cortland, N. Y.
Woods, Sherwood & Co., Lowell, Mass

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Manville, E. J. Mch. Co., Waterbury, Ct

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Wire Rope, Iron and Steel
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A. Leschen & Sons Rope Co., St. Louis,
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Capitol Mfg. Co., Chicago, Ills.
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Graham, Bailey & Co., Buffalo, N. Y.
Trimont Mfg. Co., Roxbury, Mass.
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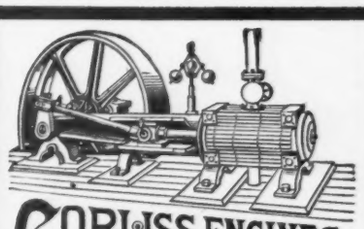
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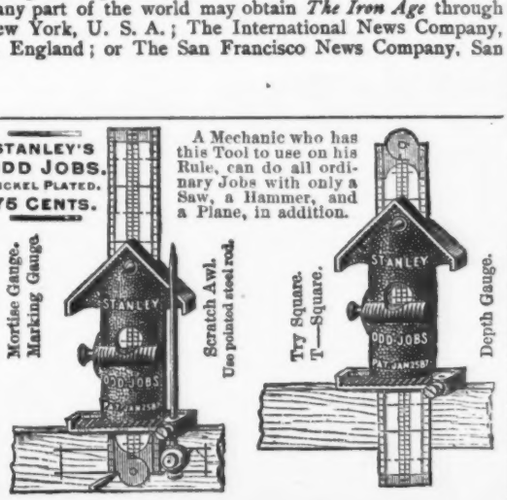
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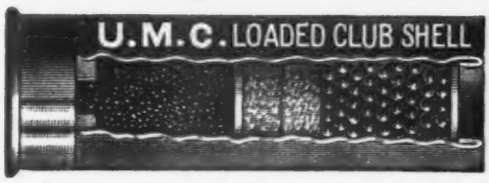
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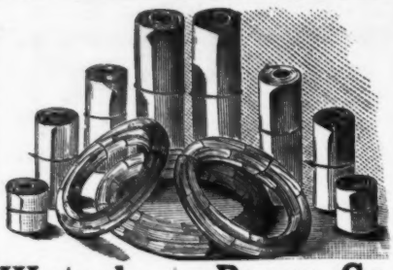
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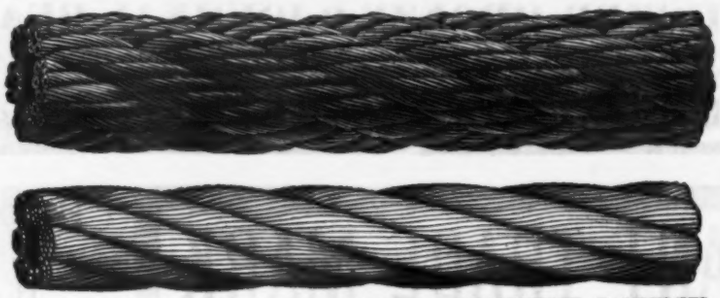
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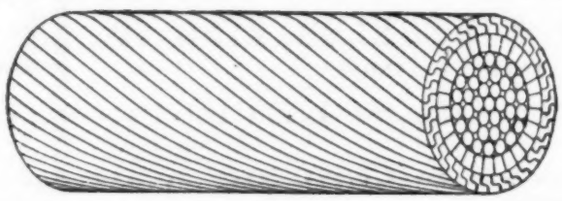
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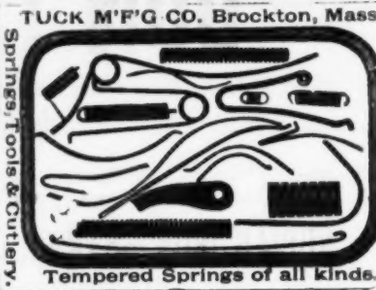


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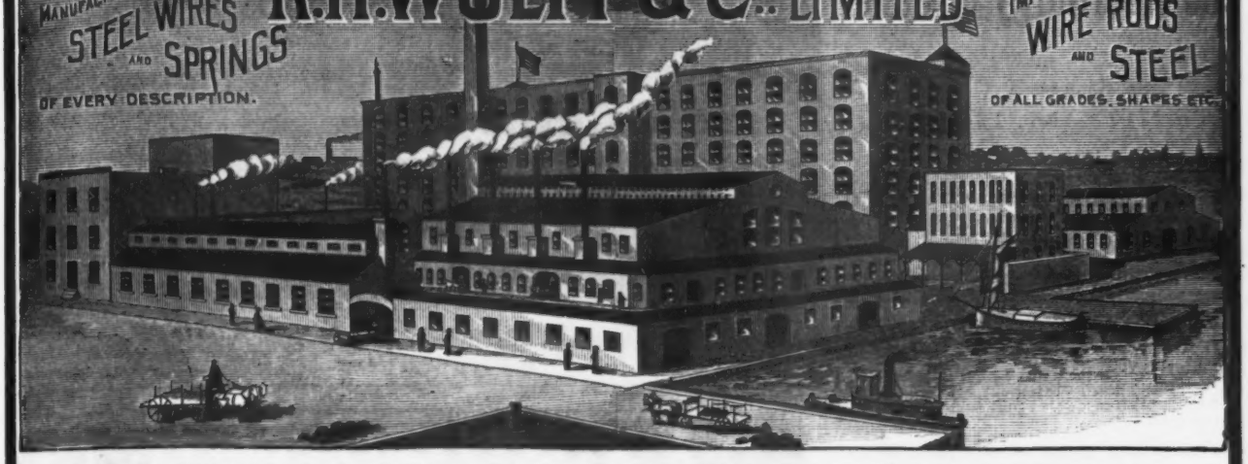


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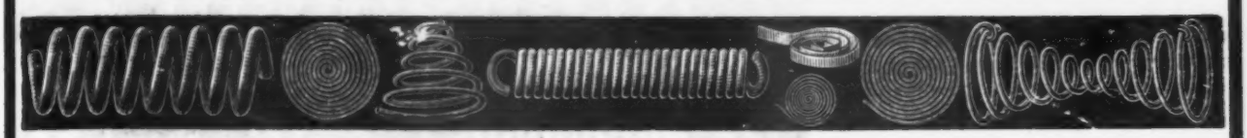
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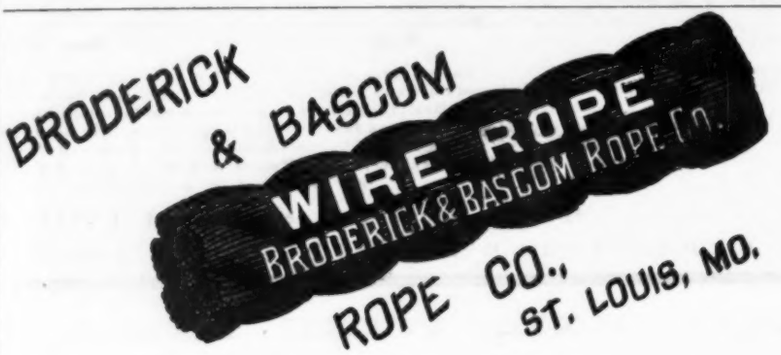
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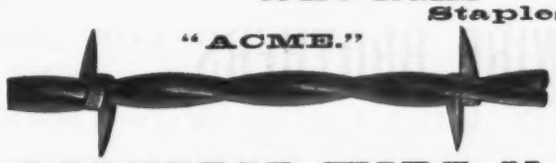
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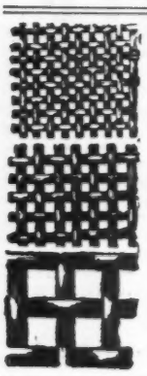
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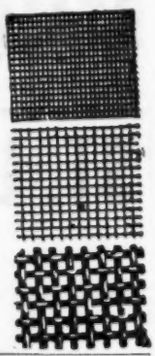
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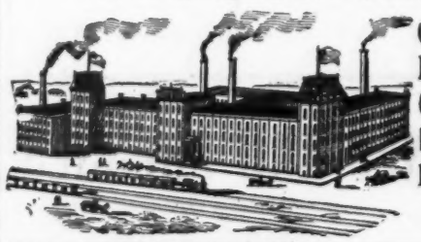
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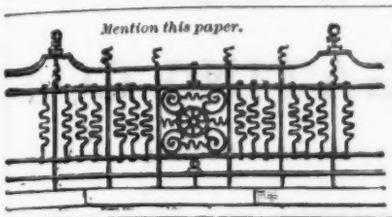
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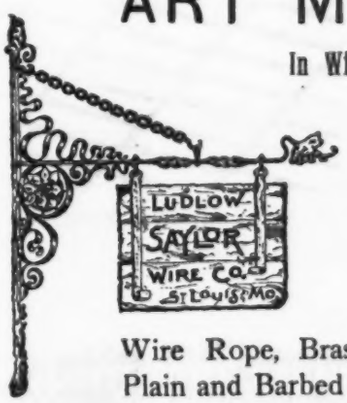
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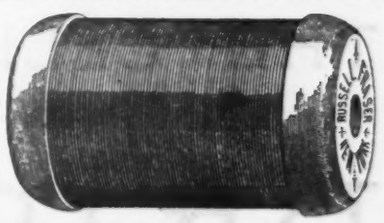
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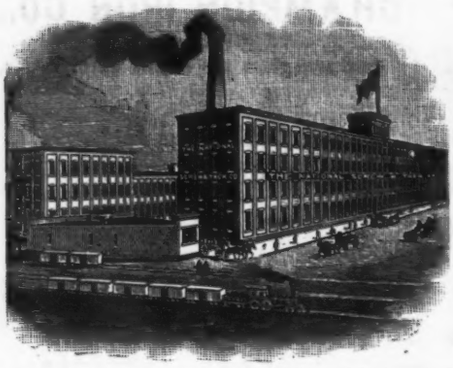
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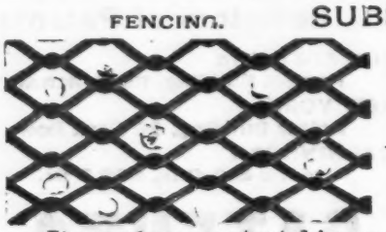
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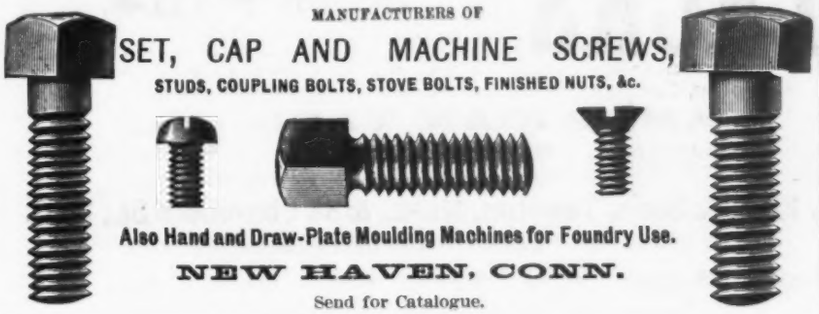
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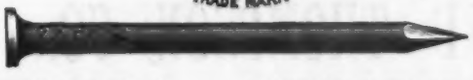
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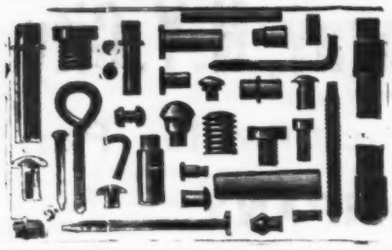
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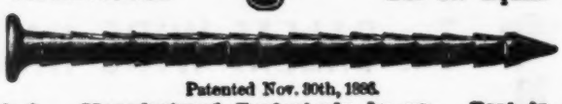
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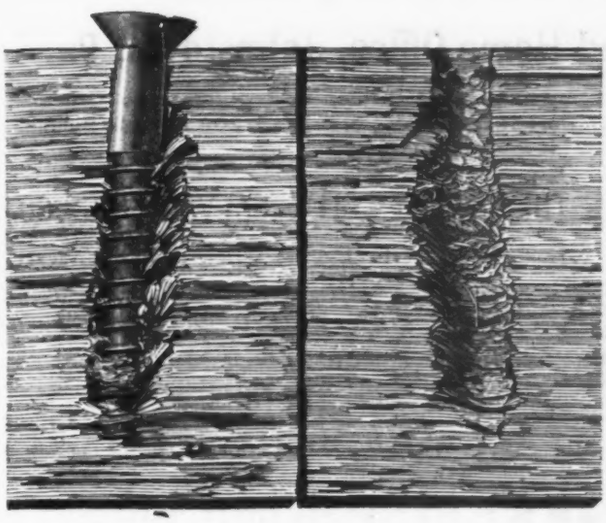
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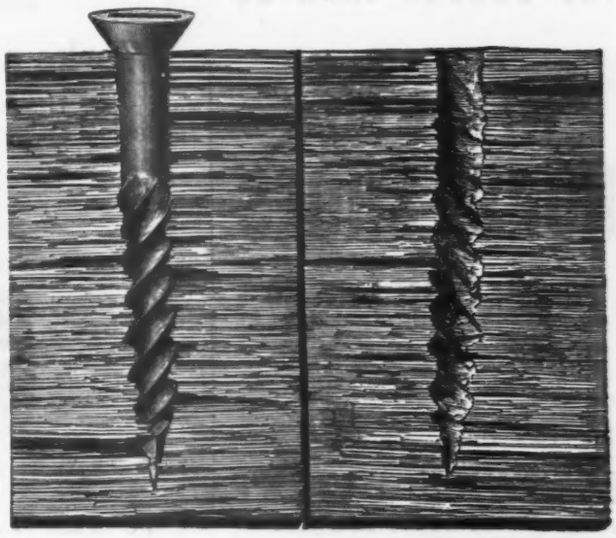
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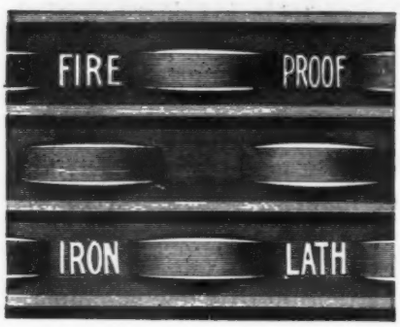
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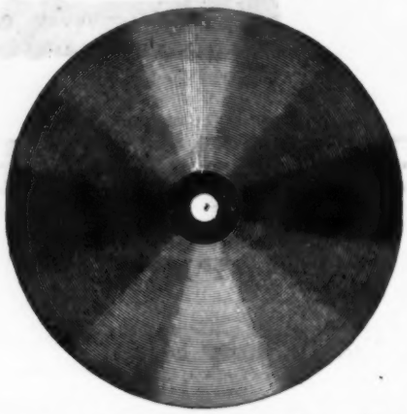
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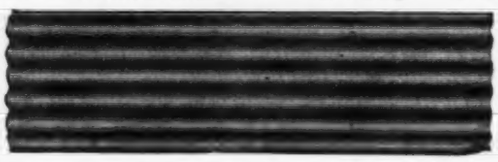
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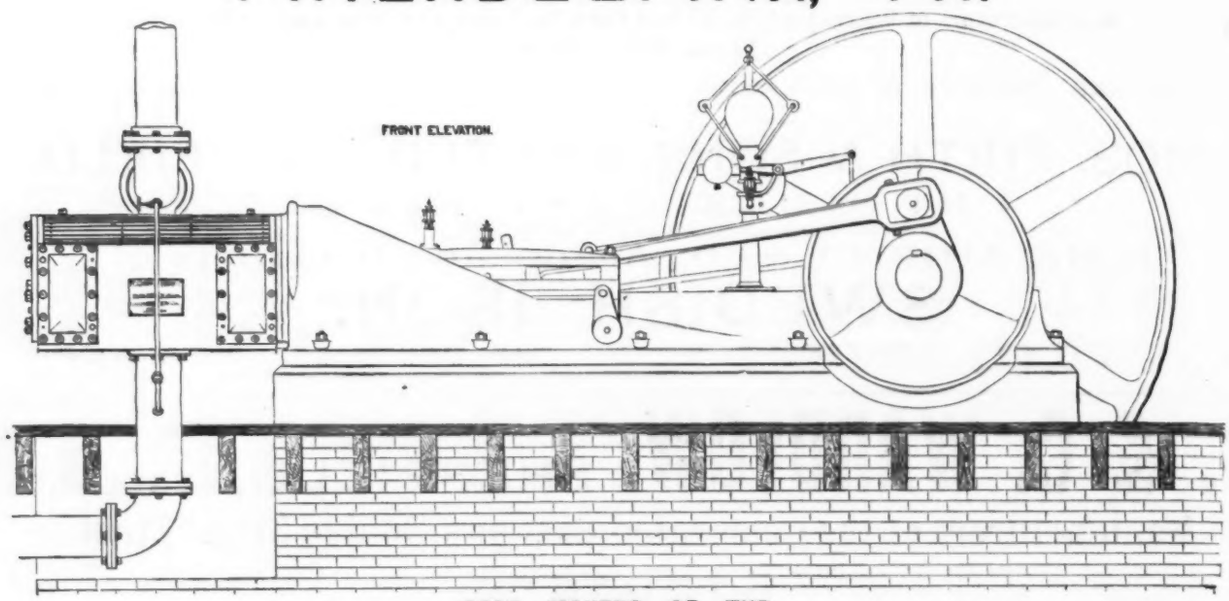
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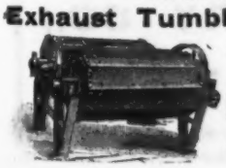
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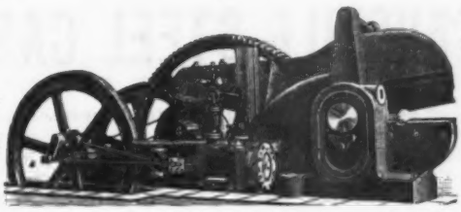
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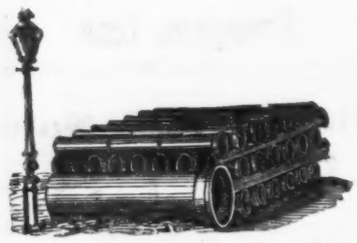
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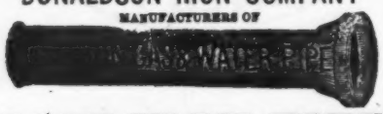

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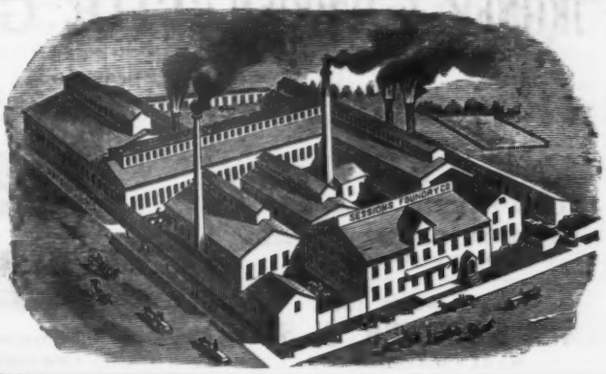
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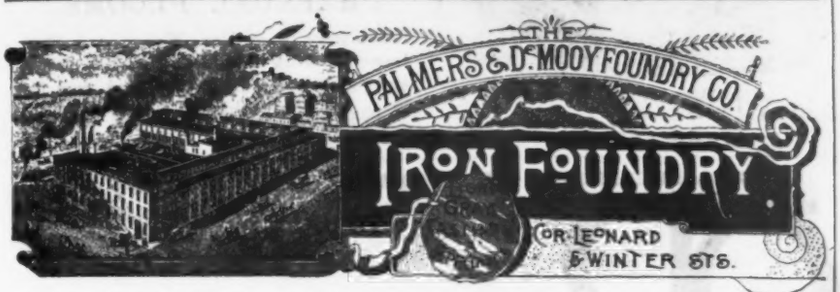
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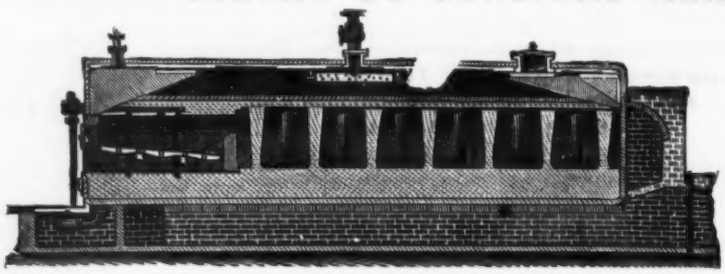
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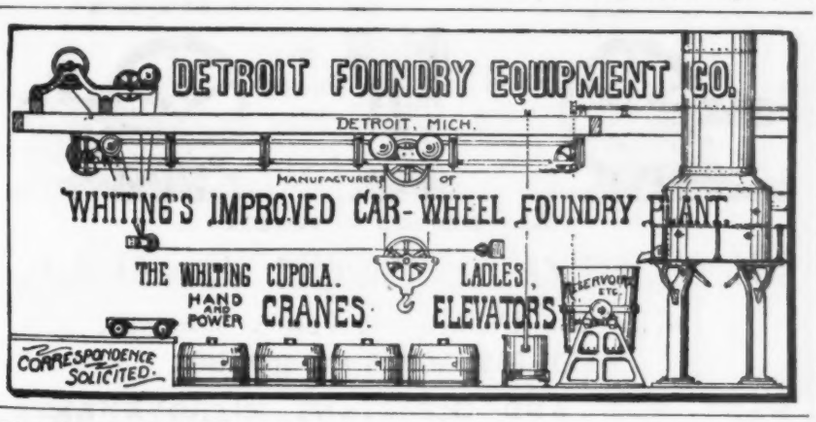
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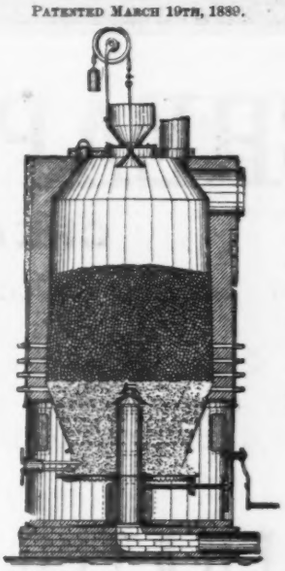
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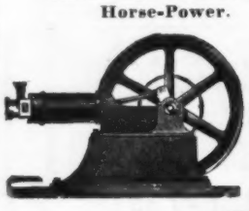
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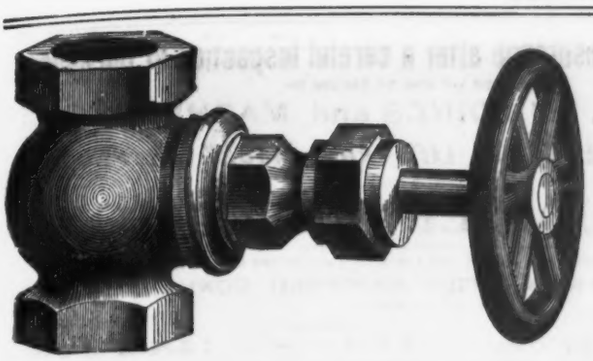
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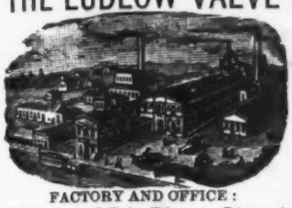
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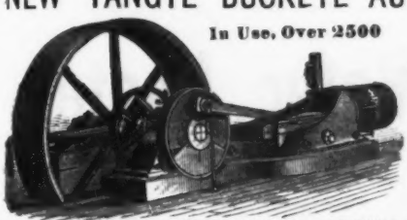
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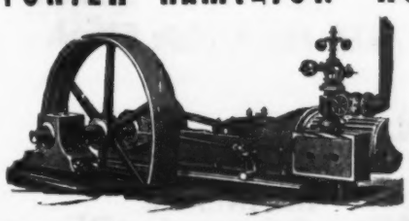


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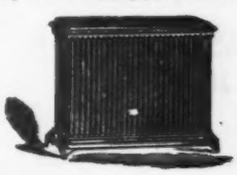
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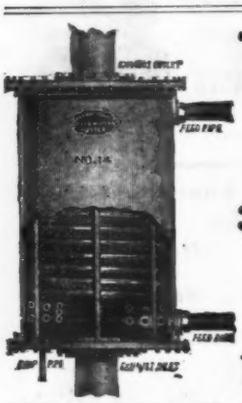
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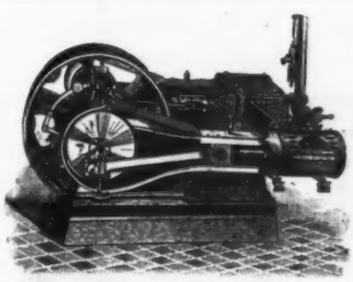


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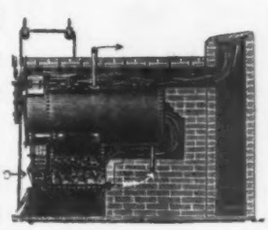
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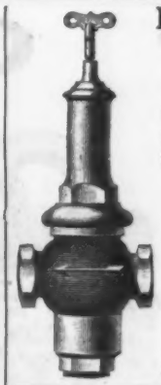




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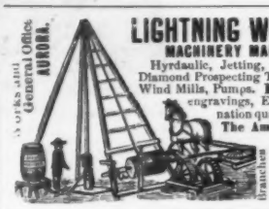
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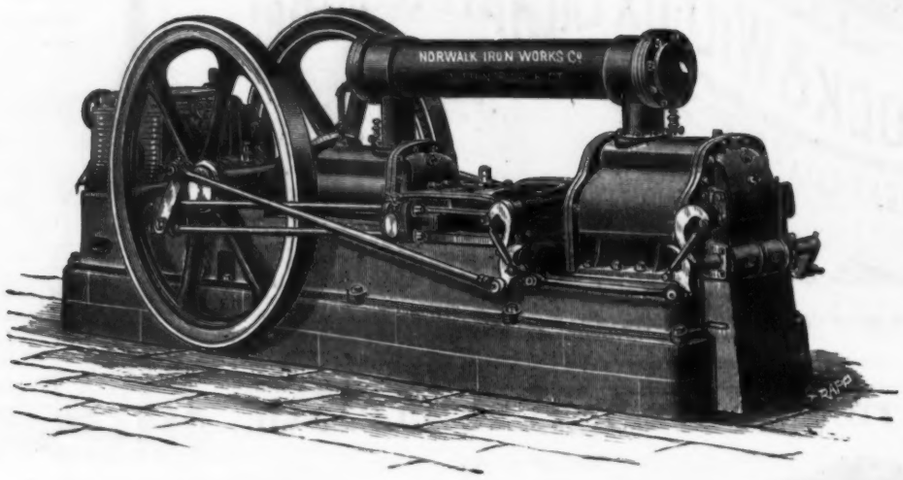
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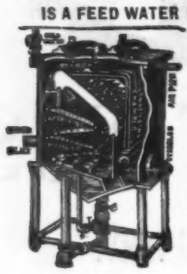
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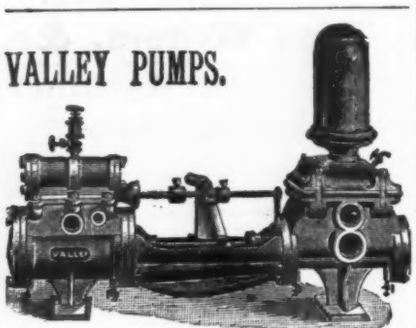
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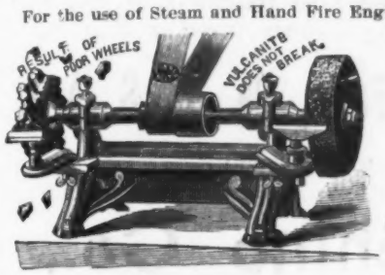
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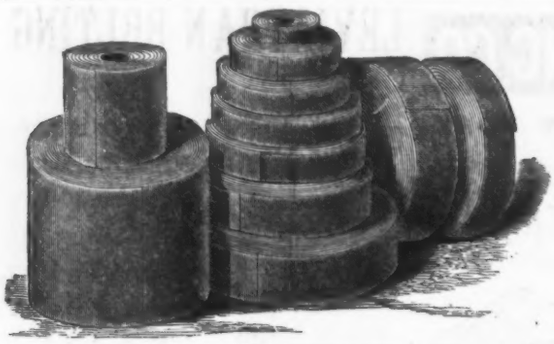


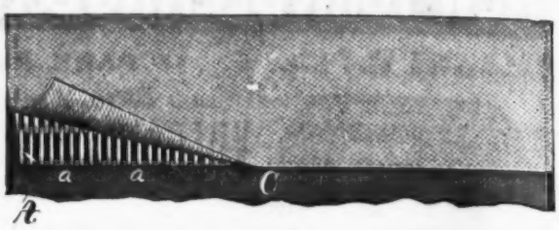
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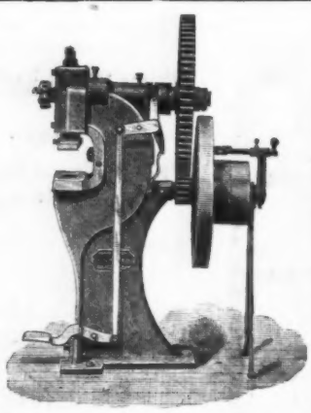
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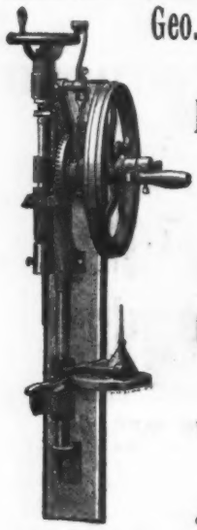
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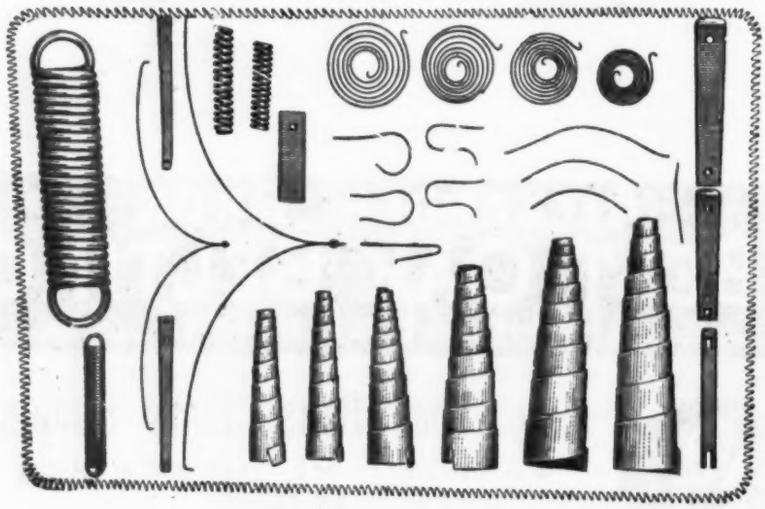
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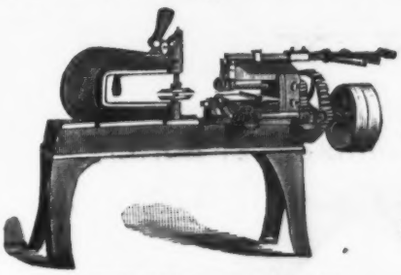
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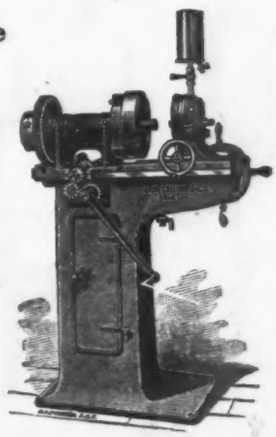
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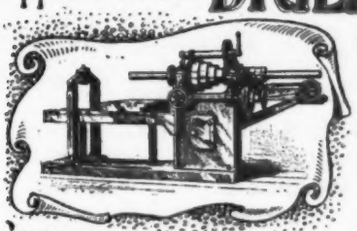
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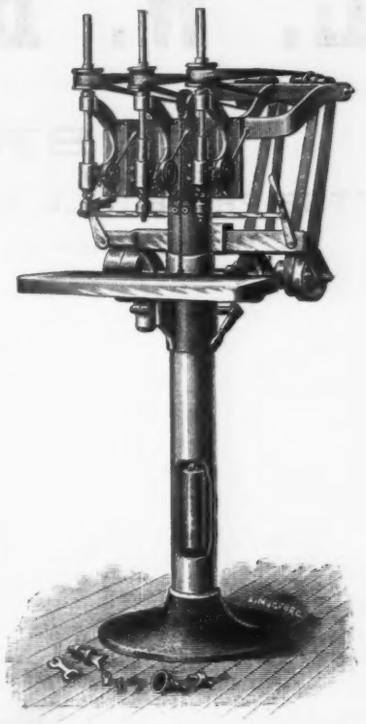
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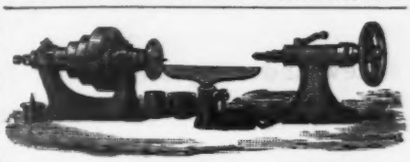
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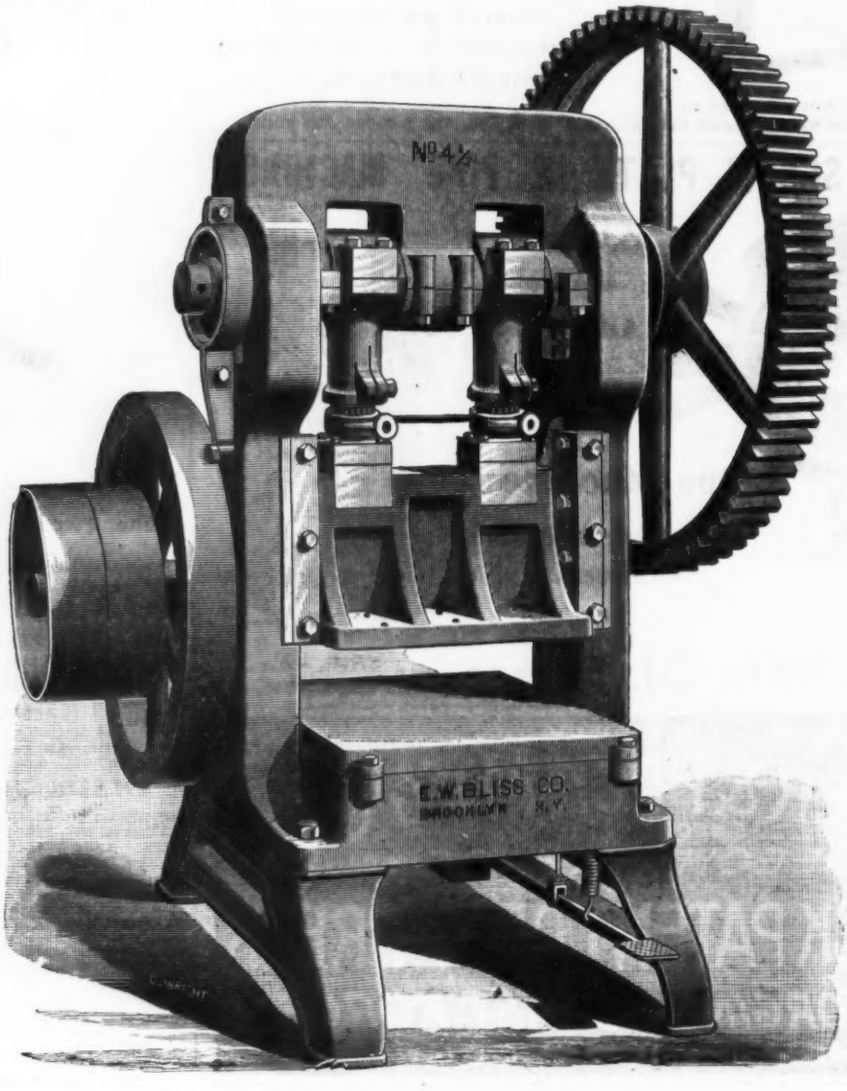
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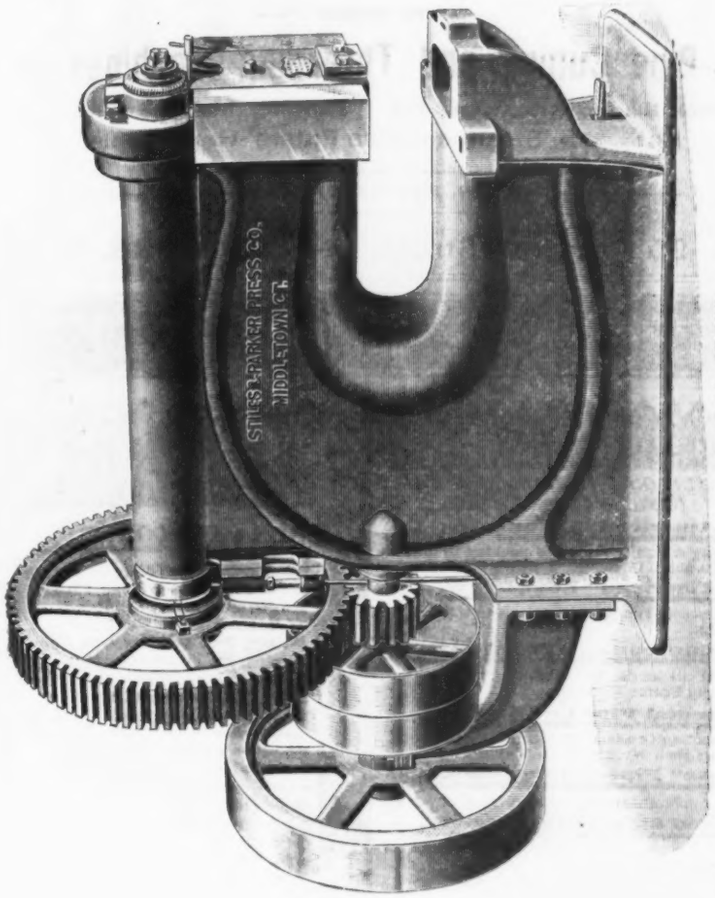
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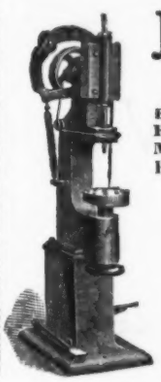
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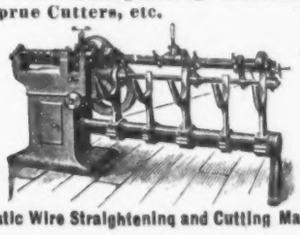


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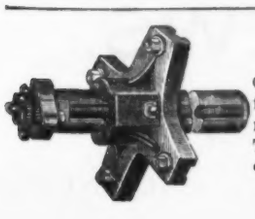


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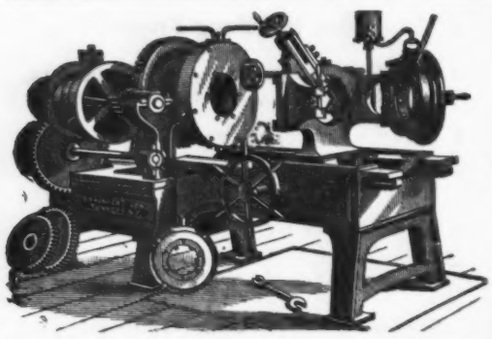


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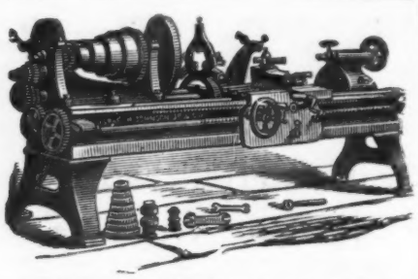
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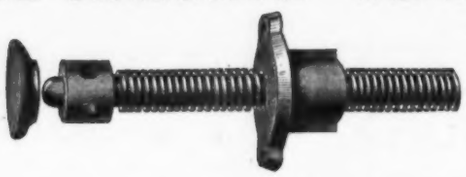
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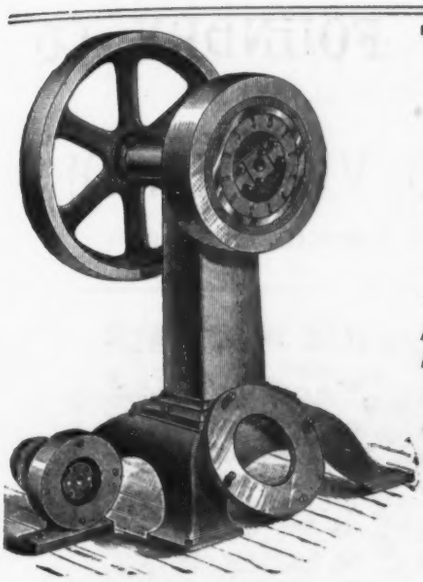
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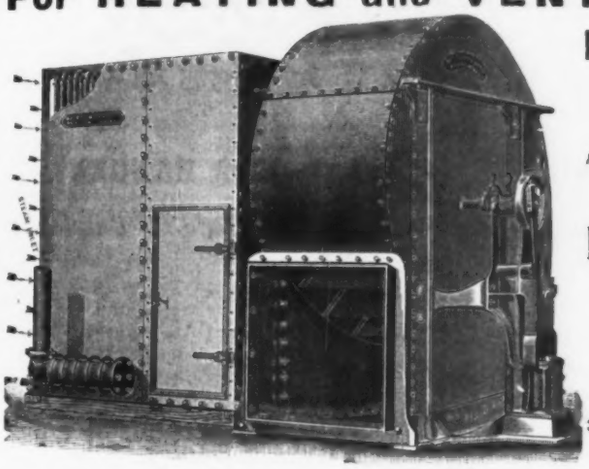
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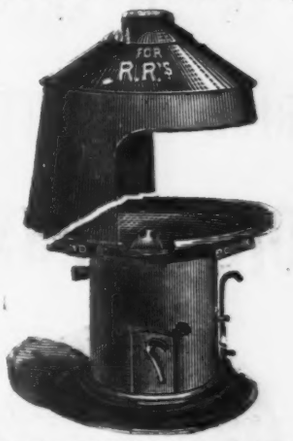
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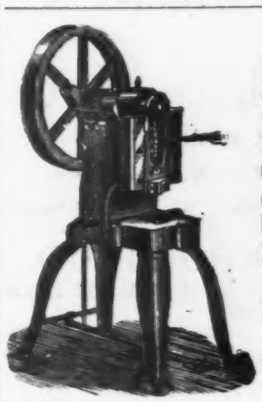
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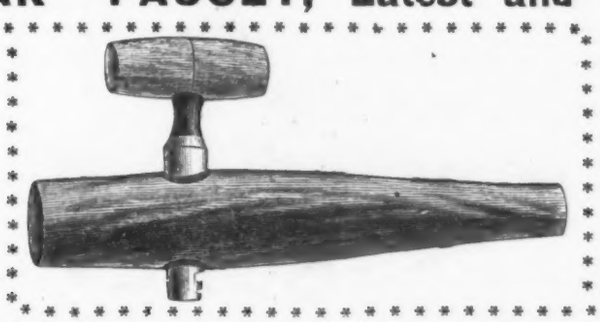
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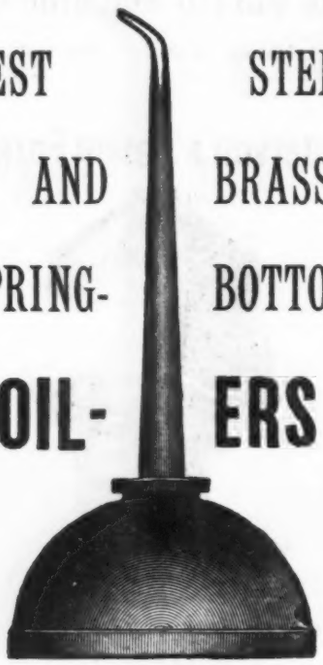
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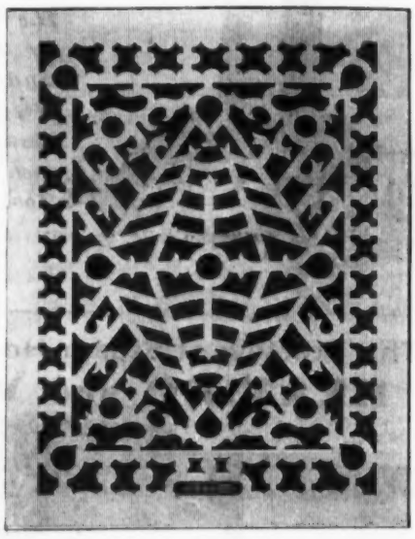
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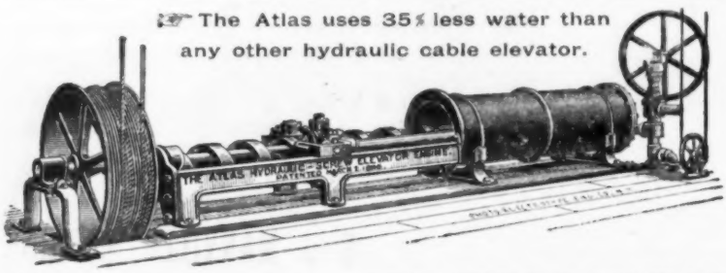
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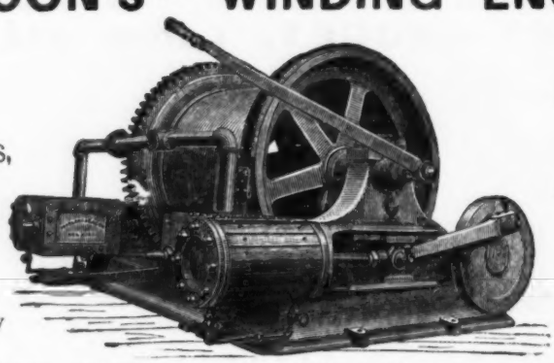
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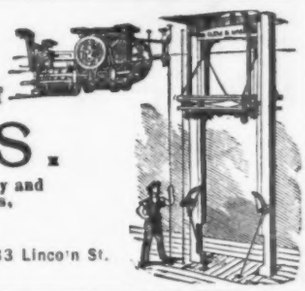
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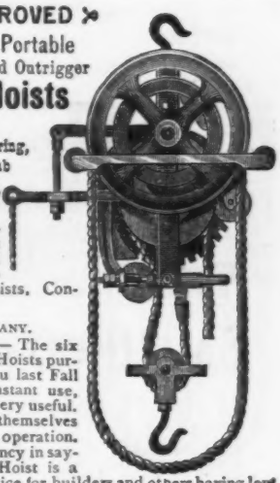
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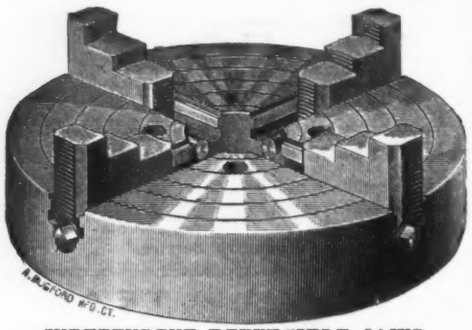
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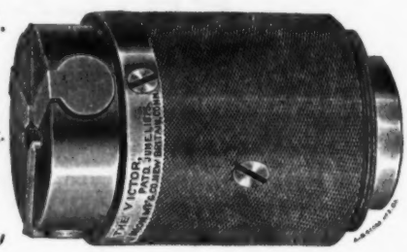
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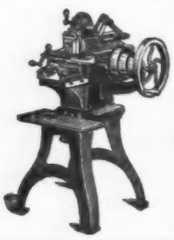
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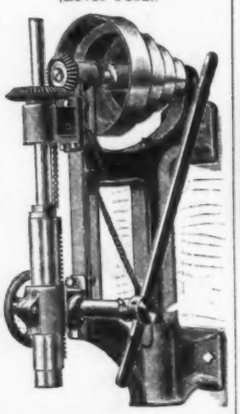
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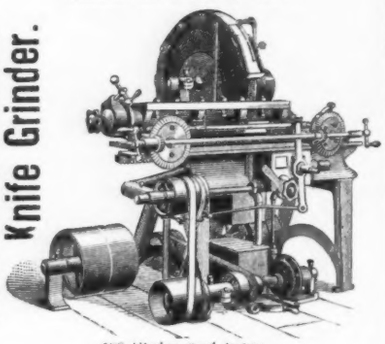


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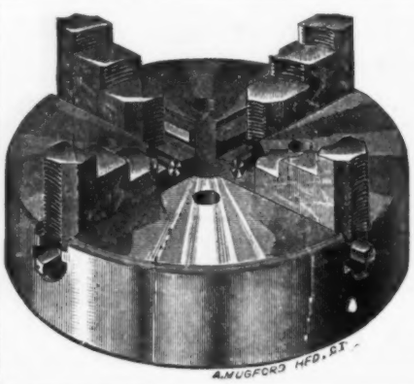
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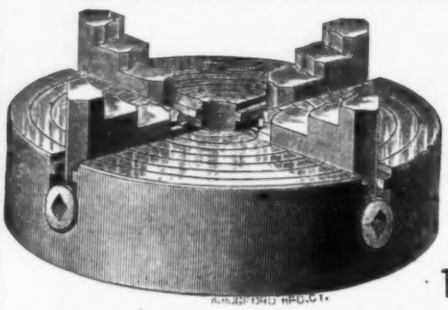
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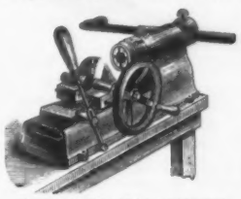
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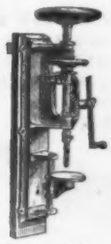
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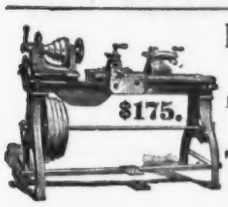
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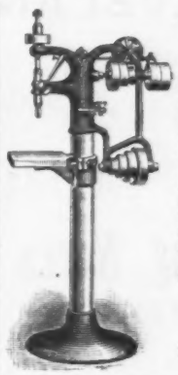
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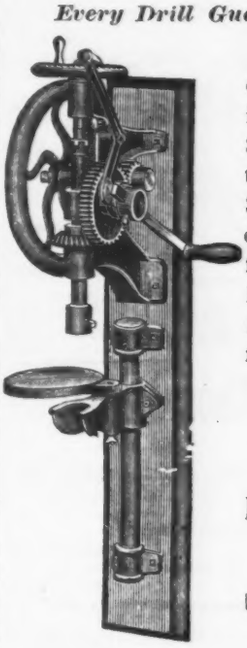
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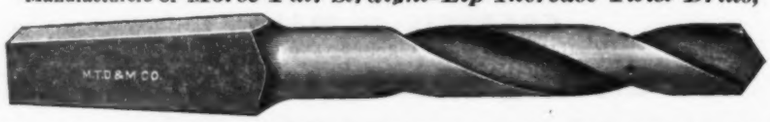
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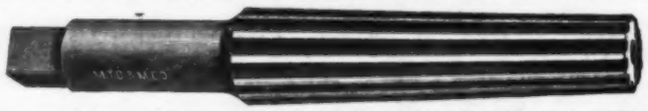
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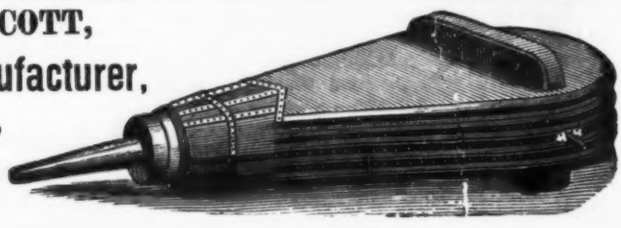
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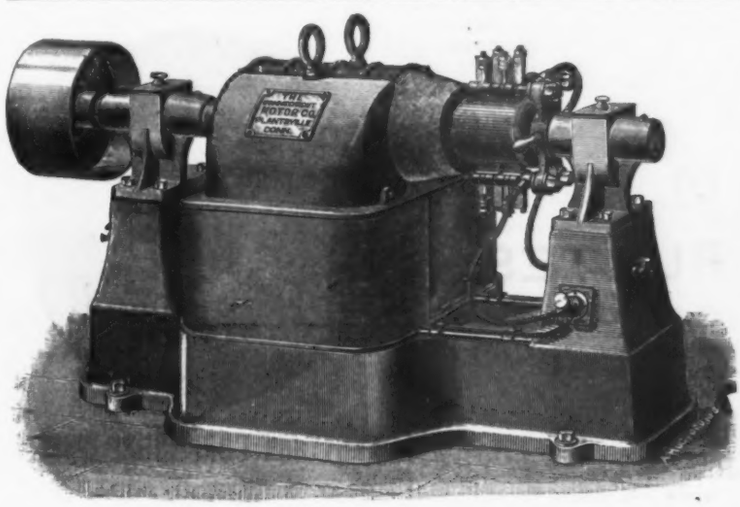
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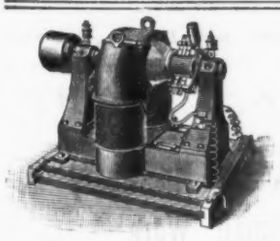
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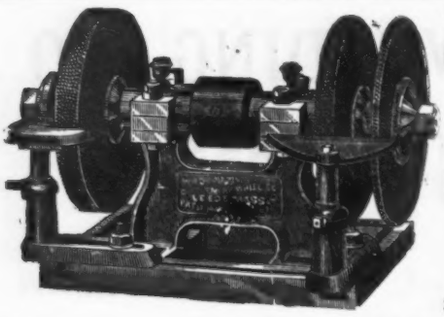
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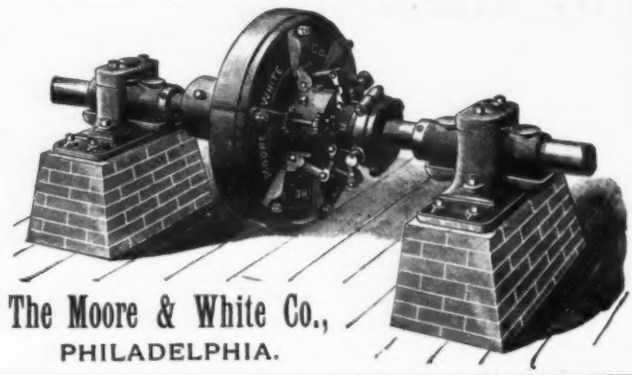
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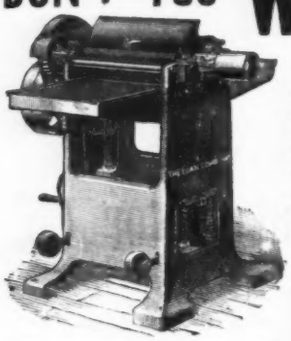


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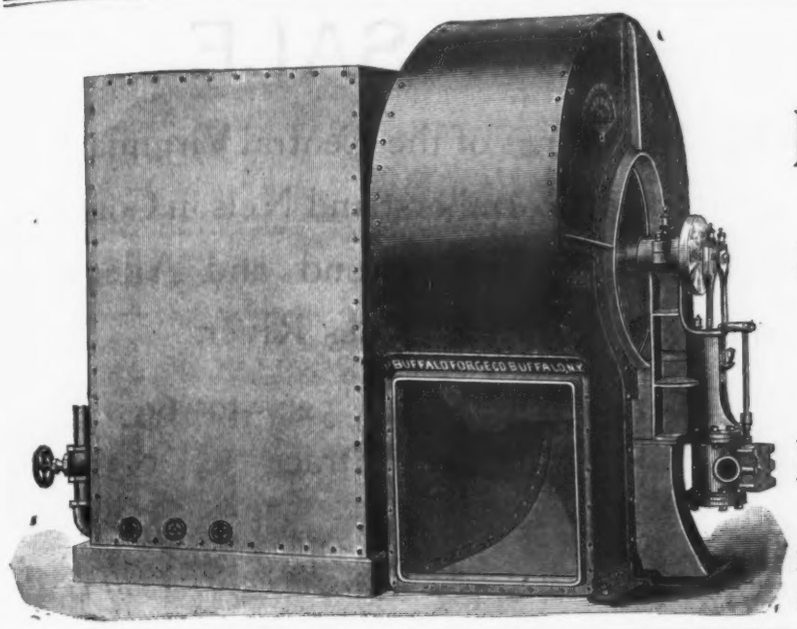
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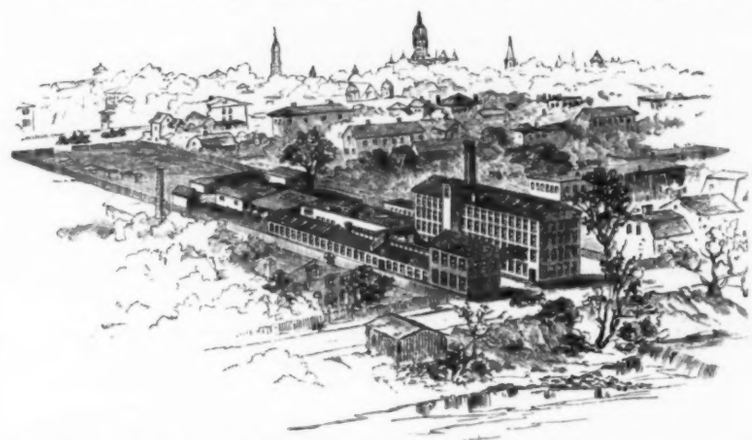
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At once, one large size Hot Press Nut Machine, to make Nuts up to 2½ in. square or hex, new or second-hand, if of modern make and in good condition.
Address
National Bolt, Nut and Rivet Works,
Reading, Pa.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.
THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

SPECIAL SALE.

LOW PRICES.

20 in. x 12 ft. Fitchburg Lathe.
20 in x 16 ft. " "
20 in. x 8 ft. Harrington "
33 in. x 12 ft. Lowell "
9 20 in. Plain Drills.
1 3-ft. Radial Drill.
4 24-in. Drill Presses.
14 in. x 20 Atlas Engine. New.
16 in. x 24 Atlas Engine. New.
18 in. x 24 Atlas Engine. New.
12 in. x 36 ft. Patent Green Engine.
16 in. x 36 ft. Horizontal Engine.
4 H.-P. Baxter Engine and Boiler.
15 H.-P. Shapley " "
7 H.-P. Gas Engine.
30 Vertical Engines. All sizes.
25 Horizontal Engines. All sizes.
2 42 in. x 11 ft. New Horizontal Boilers.
1 3 H.-P. Shapley Boiler.
1 40 H.-P. Locomotive Boiler.
1 Crank fly-wheel Pump, 5-in. suction.
1 Boiler makers' Punch, 15½-in. throat, ¾-in. hole in ¾-in. Iron.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. "
1 18 in., 22 in., 26 in., 30 in., 40 in. Water Motors.

LOVEGROVE & CO.,

Third and Quarry Sts., Philadelphia, Pa.

FOR SALE

One 16 x 42 Babcock & Wilcox Engine.
One 14 x 42 Wheelock Engine.
One 14 x 42 Greene Engine.
One 10 x 30 " "
One 10 x 24 Exeter Engine.
Three 150 H.-P. Corliss Upright Tubular Boilers
One 50 H.-P. Corliss Centennial Upright Tubular Boiler.
Three 80 H.-P. Horizontal Tubular Boilers.
Steam and Power Pumps of all sizes.

D. B. CRUICKSHANK, 243 Dyer St., Providence, R. I.

New and Second-Hand Machinery

FOR IMMEDIATE DELIVERY.

One New Haven Planer, 40 in. x 36 in. x 10 ft. Second-hand, in fine condition.
One L. W. Pond Planer, 32 in. x 32 in. x 8 ft. Second-hand, in first-rate condition.
One Open Side Planer, planes 30 in. wide, 8 ft. long, with supplemental rolling table. Practically new.
One Hendey Planer, 16 in. x 16 in. x 4 ft., with 10 in. chuck. Second-hand, in fine condition.
One Pratt & Whitney Planer, 16 in. x 16 in. x 3 ft. Second-hand, in good condition.
One Hendey Shaper, 15 in. stroke, new pattern. Second-hand, in fine condition.
One Walcott Shaper, 32 in. stroke, with key-seating attachment. Is new, but will be sold at a discount.
One New Haven Lathe, 42 in. swing, 28 ft. bed. Second-hand, in good running order.

Send for list of New Machinery on hand.

Hill, Clarke & Co.,

156 Oliver St., Boston, Mass.

FOR SALE.

1 Berryman Heater, 6 ft. x 20 in. Very good.
3 Garvin Millers, different sizes. Very good.
1 B. & S. Automatic Gear Cutter, for sewing machines, etc. Nearly new.
1 B. & S. Small Screw Machine. Nearly new.
1 2000-Gallon Eddy Plating Dynamo. Used one month.
1 1000-Gallon Weston Plating Dynamo. Very good.
1 Defiance Pulley Balancing Machine. Good as new.
1 Adt. Wire Straightner with cut-off. Good as new.
1 Foundry Crane, good for 5 to 10 tons. Good order.
1 McKenzie No. 3 Pressure Blower. Good order.
2 No. 4 Root Pressure Blower. Good order.
1 No. 9 Sturtevant Pressure Blower. Good order.
3 Exhaust Fans. Good order.
2 Ventilation Fans, 48 and 60 inches. Good order.
3 Bolt Cutters, 1 Bolt Header, 2 Tappers. Good order.
1 80 H.-P. Westinghouse Engine. Used one year.
1 Screw Wheel Press, 40 to 60 tons. Good order.
1 450 Incandescent Dynamo. Nearly new.
1 Each 5 and 10 Light Arc Dynamo.
1 Duplex Fire Pump. Nearly new.
1 Knowles B. Fire Pump.

W. H. ROBERTSON,
37 South Canal St., Chicago, Ill.

SECOND-HAND ENGINES AND BOILERS.

We have the following on hand for immediate delivery:

1 6 x 12 Horizontal Engine.
1 8 x 10 Horizontal Engine.
1 6 H.-P. Vertical Engine.
1 40 H.-P. Return Tubular Boiler.
1 35 H.-P. Return Tubular Boiler.
1 25 H.-P. Return Tubular Boiler.
1 20 H.-P. Return Tubular Boiler.
2 18 H.-P. Vertical Boilers.
1 24 x 20 x 7 ft. 7 in. New Haven Planer.
3 30 x 30 Cylinder Boilers (these may be used for stacks).

All of the above are in first-class condition and good working order.

Scranton Supply & Machinery Co.,
131 Wyoming Avenue, Scranton, Pa.

Second-Hand Machinery Cheap.

1 26 in. x 7 ft. Planer.
1 28 in. x 8 ft. "
1 43 in. x 12 ft. "
1 Heavy Power Punch.
1 18 in. x 8 ft. Engine Lathe.
1 28 in. x 12 ft. " "
1 31 in. x 16 ft. " "
1 36 in. Upright Drill.
1 No. 1 Plain Milling Machine. Brown & Sharpe.
1 No. 3 Universal Milling Machine. Brainard.
1 No. 2 Lincoln Pattern Milling Machine.
1 No. 2 Universal Grinder. Brown & Sharpe.
1 No. 2 Surface Grinder. Brown & Sharpe.
1 Two-Spindle Profiling Machine.
1 36 in. x 12 ft. Chucking Machine. Harrington.
1 Set 10 in. x 6 ft. Power Bending Rolls.
1 Set 12 in. x 10 ft. " " "
1 400 lb. Drop Hammer.
1 600 lb. " "
1 Trip Hammer.
1 12 in. Slotter. Bement.
1 13 in. "
1 12½ in. x 20 in. Armington & Sims Engine.
1 8 H.-P. Portable Engine and Boiler, on wheels.
1 10 H.-P. " " " on skids.

We are agents for Pratt & Whitney Co.'s Machinery.

We have the finest line of Power Presses in the market. Send for catalogue and prices.

Write us of what you want, and send description of machinery that you wish to trade or sell.

The J. A. Mackinnon Machinery Co.,
22 Warren Street, New York.

FOR SALE.

Punching and Shearing Machinery.

Hand and Belt Power.

Boiler Makers' Rolls.

NEW DOTY MFG. CO.,

Janesville, Wisconsin.

FOR SALE.

Machinists' Tools, Lathes, Planers, &c.; been used about two years; now in fine order; remains of bankrupt estate of engine works; to be sold low for prompt cash. For particulars and circulars address

H. B. BEACH & SON, Agents,
Hartford, Conn.

FOR SALE.

2 Pipe, 2⅓ feet diameter, 24 feet long, with cast iron flanges, suitable for

SMOKE STACKS.

DAN'L W. RICHARDS & CO.,
88 to 96 Mangin St., New York.

FOR SALE, CHEAP.

24 8d Nail Machines and Patterns.

One Steam Hammer and Patterns.

FALL RIVER IRON WORKS CO.,
Fall River, Mass.

For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address

Wm. F. Jarvis & Co.,
Detroit, Mich.

TWO SWITCHING LOCOMOTIVES

FOR SALE.

Two 30-Ton Rogers Saddle Tank Switchers in excellent condition, 14 x 22 cylinders, four drivers; will work on any curve; immediate delivery. Address

J. S. BERKERY,
Detroit, Mich.

Iron Tools, Second-Hand.

1 13 in. x 8 ft. Engine Lathe.
1 23 in. x 12 ft. " " Chain Feed.
1 24 in. x 14 ft. " " Screw "
1 26 in. x 10 ft. " " New Haven.
1 36 in. x 22½ ft. " " Triple Geared.
1 44 in. x 21 ft. " " " "
2 64 in. x 24 ft. " " " "
1 30 in. x 30 in. x 10 ft. Iron Planer. Putnam.
1 36 in. x 36 in. x 13 ft. " " Sellers.
1 36 in. x 36 in. x 22 ft. " " " "
1 36 in. x 36 in. x 18 ft. " " New York Steam Engine Co.
1 8-in. Shaper. Boynton & Plummer.
1 12-in. " Gould & Eberhardt.
1 15-in " Hendey, Improved Vise.
1 9-in. Slotter. Niles.
1 No. 2 Bement Cotter & Key Seat Cutter.
1 1-in. Double Bolt Cutter.
1 Miller's Hand Drill.
1 No. ½ Root Blower.
1 250-lb. Steam Hammer. Morgan.
1 3800-lb. " " Bement.
1 Nichols Power Riveting Machine.
1 Wilber Power Flanging Machine.
3 3-in. Waters Governors.
1 10 x 10 Double Reversing Engine.
1 6-in Centrifugal Pump.
Also second-hand Punches, Shears, Blowers, etc.
1 42 in. Car Wheel Borer. Niles make.

Wood Tools, Second-Hand.

1 Large Car Mortiser and Borer.
1 " Size Car Tenoner.
1 Small " " "
1 Universal Horizontal Car Borer.
1 8-in Flooring Machine.
1 36-in. Circular Rip Saw.
3 Foot Mortisers.
1 Column Ripping Saw.
1 No. 5 Unstrained Scroll Saw.
1 Tanite Saw Gummer.
Lot Shafting, Pulleys, Haugers, etc.

Also a complete line of new Iron and Wood Working Tools for immediate delivery. Write for quotations; also for small tool catalogue. Mention this paper.

U. BAIRD MACHINERY CO.,

74 and 75 Water Street; 92 and 94 First Avenue, Pittsburgh, Pa.

SECOND-HAND ENGINES.

26 x 60 C. H. Brown Automatic Cut Off.
12 x 24 Plain Slide Valve.
12 x 12 Reversible Link Motion.
12 x 18 Erie City.
12 x 18 Woodbury Booth and Pryer Automatic.
12 x 12 Ball Automatic.
10 x 20 Twiss Automatic.
9 x 12 Plain Slide Valve.
8¼ x 10 Armington and Sims Automatic.
8 x 10 Payne Automatic.
8 x 9 Upright.
7 x 9 Upright.
6½ x 7 Upright.
5½ x 7 Upright.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

One Boiler, good as new, 48 in. diam., 14 ft. long, double riveted, 25 4-in. tubes; Wetherell & Co. make; fronts, bars and all trimmings complete.
Two 75 H.-P. Boilers, all complete; I. P. Morris & Co. make; best flange charcoal iron, double riveted; blow offs, 30, 36 in. diam.
Smoke Stacks, Iron Tanks, Engines and Boilers, all sizes. Nearly everything in the Machinery line. Scrap Iron and New and Old Metals.

BUSSENIUS & CUNLIFFE,
1142 Washington Ave., - - Philadelphia.

FOR SALE.

10 Wire Nail Machines, only been run a short time; will sell either all or part; also Forge, Tumbler, Sturtevant Exhaust, &c.

Address
"TUMBLER,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WIRE MILL FOR SALE.

To close the estate of **THE NEWHAVEN WIRE CO.**, its Wire Drawing Plant is offered for sale; the mill is now running at a profit; there are about four acres of land, a good wharf, substantial brick buildings, and machinery all in good order. For further information, address

SAMUEL A. GALPIN,
Receiver, New Haven, Conn.

A NEW IDEA!

Choice Second-Hand Boilers, Engines and Machinery at First Hands.

Also odd lots new goods at greatly reduced prices. *Send for my list.*

THOMAS P. CONARD,
206 Walnut Place, Philadelphia.

FOR SALE CHEAP.

One 7-ft. Lathe, has been used for turning locomotive wheels.
One 6 x 8 Hoisting Engine and Boiler, nearly new.
One 48-in. Chucking Lathe.
Two Cheap Drill Presses.

ALFRED BOX & CO.,
Front, Poplar and Canal Sts., Philadelphia, Pa.

NEW AND SECOND-HAND

MACHINERY

FOR IMMEDIATE DELIVERY.

The following second-hand Tools we have replaced with our **Improved New Ones** and will close them out low.

Reed,	Engine Lathe,	11 in. swing,	6 ft. Bed.
Putnam,	" "	13 in. "	4½ ft. "
New Haven,	" "	16 in. "	6-8 ft. "
Hewes & Phillips,	" "	18 in. "	9 ft. "
Fitchburg,	" "	16 in. "	8 ft. "
New Haven,	" "	18 in. "	8 ft. "
Wood & Light,	" "	20 in. "	7½ ft. "
Wright,	" "	20 in. "	22 ft. "
Townsend,	" "	21 in. "	7 ft. "
New Haven,	" "	25 in. "	10 ft. "
Hewes & Phillips,	" "	25 in. "	15 ft. "
Putnam,	" "	36 in. "	18 ft. "
Leonard,	" "	38 in. "	18 ft. "

Amer. Tool Co., No. 2 Cabinet Turret Lathe.
Gage, Square Arbor Fox Lathe, 15 x 5.
Badger, Planer, 24 in. x 6 ft.
Pond, " 26 in. x 8 ft.
New Haven, " 30 in. x 8 ft.
New Haven, " 32 in. x 10 ft.
Worcester, " 43 in. x 18 ft.
Brown & Sharpe, No. 2 Screw Machine.
Brown & Sharpe, 18-in. Automatic Gear Cutter.
Upright Boring and Turning Mill, 39 in. New.
Pratt & Whitney 20-in. Drill.
Combined Punch and Shear. Standard Size.

NEW TOOLS on Hand and Early Deliveries.

Fitchburg Machine Works, Lathes, 14-16-18-27 in.
Prentice Bros., Lathes, 14-16-18 in.
Hendey Machine Co., Lathes, 14 and 18 in.
Lathe & Morse, Lathes, 21-27-32 in.
Wright Machine Works, Lathes, 16-20-24 in.
Fay & Scott, Lathes, 28-32 in.
Prentice Bros., Drills, 20-21-25-28-32 in.
Powell Planer Co., Planers, 22-24-30-36 in.
Gould & Eberhardt, Shapers, 16-24 in.
Gage's Brass-Working Turret Lathes.

Large Assortment of other Tools, New and Second-hand. Send for Complete List.

J. J. McCABE,
Successor to **E. P. BULLARD'S**
New York Machinery Warerooms, 68 Cortlandt St., New York.

ROD MILL

Wanted by a party contemplating erecting a Wire Rod Mill in the West to roll 40 tons wire rods single turn, with all necessary appurtenances, including power. Address correspondence, with estimates and proposition, to

C. R. PARSONS,
140 Nassau Street, Room 86, New York.

FOR SALE.

Whole or half interest in Foundry and Machine Shop in the best town in the West. Everything new and running at full capacity on paying business. Good reasons given for selling.

Address
BOX 43, Pittsburg, Kansas.

FOR SALE.

In West Chelmsford, Mass., all the Real Estate and Machinery formerly owned by the Hiscox File Co.; the real estate consisting of about 7 acres of land together with the buildings and water power, and the machinery, being such as was used by them in the manufacture of files, machine knives, sword blades and edge tools. There is also on the premises a good 75 horse-power Harris-Corliss engine and good boiler, also a large amount of shafting, belting and supplies. This property is situated about five miles from Lowell, and is very easy of access by railway, with excellent facilities. The entire property will be sold very cheap, either as a whole or in part, and will afford some party an excellent chance to enter into this business. For terms, &c., inquire of

J. W. BENNETT, Lowell, Mass., or
F. G. SARGENT, Graniteville, Mass.

FOR SALE.

27 Gross Tons Steel Rails, 4 feet long and over.

SIMON & BLONDER BROS.,

OFFICE and Yard: 158 and 160 WEST CHICAGO AVENUE,

CHICAGO, - ILLINOIS.

WANTED.

A Left-hand Automatic Horizontal Engine, 20, 22 or 24 in. diameter, 24, 26 or 28 in. stroke; second hand.

STANDARD LUMBER CO., Dubuque, Iowa.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

FOR SALE.

The well-established business, known as THE GAYLORD, CROSS & SPEIRS CO., located in Waterbury, Conn., is offered for sale. This plant is on the corner of Benedict and Meadow Sts.; consisting of land, brick and frame buildings, &c.; the foundry and all machinery goes with sale; there is between $10,000 and $12,000 worth of machinery that goes with the business. The lot fronts on two streets, 164 feet on Meadow and 219½ feet on Benedict Sts.; there is ample room for another large machine shop or any kind of manufacturing business without being cramped for room; this plant is only two minutes' walk from depot. The reason why this valuable property is put in the market at the price asked is because the owner is West and cannot give the attention that it requires. Take the business in consideration, both in foundry and machine work, it is a rare opportunity that does not occur every day, where one can buy an established business for the low figure, $45,000. The land and buildings alone are worth the price I ask, without the machinery. Address

L. J. BOWEN, Receiver,
Waterbury, Conn.

COAL at **50 cents per ton for twenty years; $1,000,000 cash,** and desirable location, with railway facilities, at **$100 PER ACRE,** worth $500, as special inducements to encourage new manufacturing industries

MEANS that **PITTSBURG, Kansas,** with its unequaled railway connections, is the best point on this continent for the establishing of smelting works, foundries and machine shops and any kind of manufacturing industry consuming coal and looking to the U. S. and Mexico for a market; guaranteeing

PROSPERITY to every dollar invested and every man employed. Gas, 75 cents per thousand. Taxes 8 per cent. on a 30 per cent. valuation; four trunk railways; $7,000,000 invested in industrial enterprises, best of free schools, property cheap. **Now is the time to invest. Come and investigate.** Write for information and **Maps.**

TO PITTSBURG

PITTSBURG TOWN CO.,
Pittsburg, Kan. A. W. GIFFORD, General Agent.

FOR $25,000

I will sell a very profitable Manufacturing Plant, all running in good shape; goods sold as fast as produced; poor health the only motive for selling; experience not essentially necessary, as all work is produced by the piece; margin of profit very large. Running 15 years without a stop. This is an extraordinary chance for an energetic young man. Address

"MANUFACTURING PLANT,"
office of *The Iron Age*, 66 and 68 Duane st., N. Y

FOR SALE. BLOWING ENGINE.

Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address

JAMES LEFFEL & CO.,
Springfield, Ohio.

WANTED.

A second-hand 5-ton Steam Hammer; must be in first-class order. State price and where tool can be seen.

THE BERLIN IRON BRIDGE CO.,
East Berlin, Conn.

To Those Looking

—FOR—

Manufacturing Sites

IN THE SOUTH.

The most desirable locations in the South for manufacturing wagons, stoves, agricultural implements, furniture, or for foundries, machine shops, rolling mills, muck bar mills, nail works, glass works, cotton or woolen mills and tanneries, are to be found in Virginia along the line of the Norfolk & Western Railroad from Norfolk to Bristol, and upon its branch lines. Hard wood of every variety; pig-iron from the furnaces at Lynchburg (2), Roanoke (2 in operation and 1 now under construction), Pulaski (1), Ivanhoe (1), Radford (1, to be built in 1890), Salem, Graham, Max Meadows and Bristol (1 at each point now under construction), bar iron from the rolling mills at Roanoke, Lynchburg and Richlands (1 to be built in 1890); coke and semi-bituminous coal from the Pocahontas Flat Top field; superior gas coals from the mines on the Clinch Valley extension; glass sand from Tazewell County; cotton from the markets of the Southern States, and wool from all the Western and Southwestern States and Territories, at advantageous freight rates. Favorable freight rates made upon raw materials to all factories established upon its line, as well as to points in the United States and Territories upon the manufactured articles.

Those seeking new fields for manufacturing establishments should not fail to investigate the wonderful development of iron, coal and coke industries that has been made within the past five years along the line of the Norfolk & Western Railroad, and the advantages offered by the State of Virginia in the supply of cheap raw materials, by the Norfolk & Western Railroad in the matter of freight facilities and rates upon raw materials, and for reaching home, far distant and foreign markets, and by the cities and towns along its line in the way of advantageous sites at moderate cost. Many of the cities and towns exempt manufacturing establishments from taxation for a series of years.

For further information as to freight rates and sources of supply of raw materials, apply to A. POPE, General Freight Agent, Roanoke, Va., or to

CHAS. G. EDDY,

Vice-President, Roanoke, Va.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.

WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

PORTLAND, OREGON.

To Merchants, Bankers, and Manufacturers.

Your attention is invited to the large opportunities for Jobbing of every kind, Banking and Manufacturing in the City of Portland. Portland is the second city and coming metropolis of the Pacific Coast, as New York City denominates the Atlantic Coast.

Without trans-Atlantic railroads till 1883, she already has secured more trans-continental roads than any other city on the Pacific coast. She is nearer Chicago and New York and reached quicker by rail than any other city on the Pacific coast. (See maps and railroad time-tables.)

Portland is situated at the mouth of more miles of river navigation than any city, except New Orleans, in the United States. Over 3000 miles of the Columbia and Willamette rivers and tributaries are navigated by river steamers contributing to Portland's Commerce Portland has 250,000 square miles of area distinctively her own trading territory, in which are now being operated 3409 miles of railway with 1000 miles more to be added before the end of 1891.

Portland has exclusive lines of vessels trading coastwise to San Francisco, 772 miles south, to Puget Sound points and British Columbia points, and to Alaska, 1500 miles north.

She also has exclusive lines of vessels plying between Portland and New York City, between Portland and Japan, and between Portland and China. In addition, Portland loads annually at her wharves over 100 seagoing vessels coming in on special charters after cargoes of salmon, flour, wheat and ship timbers, going to nearly every well-known port in the world.

The tributary territory of Portland is about the size of New England, New York, Pennsylvania and Ohio combined. In 1880 it had scarcely 225,000 inhabitants. To day there are over 1,000,000 and increasing 1000 daily, and must steadily grow to 10,000,000 or more. The immigrants are chiefly farmers.

Portland controls the trade of ten times the fertile acreage tributary to any other Pacific coast point

AND MORE THAN ALL OTHER PACIFIC COAST POINTS COMBINED.

Portland has Unlimited Water Power for Manufactories. Vast Water Power at the Entrance to Deep Sea Navigation is Rare, and Exceedingly Valuable to Portland's Mfg. Development.

Portland has electric, cable and horse-car lines, charming parks and boulevard drives, hotels costing as high as $900,000, churches costing as high as $150,000, a grand system of public and private schools, including a high school costing $127,000, several colleges, and an air of refinement and culture which makes people from the larger Eastern cities feel perfectly at home.

Portland's Leading Commercial Interests are Exporting, Banking and Wholesaling, with Manufacturing Rapidly Developing

The Salmon fisheries of the Columbia river produce $2,000,000 to $3,000,000 annually. The export trade has multiplied several fold in recent years, as the country develops. The banking capital has grown to fourteen banks controlling six millions of capital. Our wholesale trade has grown from $75,000,000 in 1888 to $115,000,000 in 1889, and is yet in its infancy and growing at the rate of over 25 per cent. annually. Our manufacturing output in woolen goods, lumber, boots and shoes, paper, iron and many other lines aggregated over $20,000,000.00 in 1889, and is not yet fairly begun.

All these interests are thriving and yet there is room for enlargement on every hand in a region richer in agricultural resources than Illinois and sister States, in iron and coal similar to Pennsylvania and Alabama, greater in lumber than Minnesota and Maine and unrivalled in the more precious metals.

There has never been a failure of a bank or wholesale house in Portland.

The recent enormous development of the trade of Portland has outgrown all her facilities and her capital. Therefore the Oregon Immigration Board urges and invites correspondence and personal visits from people in all lines of Wholesale Trade, Banking and Manufacturing.

$20,000,000.00 additional capital would find immediate employment, producing profits very large to people with Eastern ideas, yet with unqualified safety. While in several lines we need houses commanding $500,000.00 to $1,000,00.00 capital, in many other lines there is room for young merchants and manufacturers to begin on limited capital, and "grow up with the country."

THE OREGON IMMIGRATION BOARD is an institution supported by several hundred of the more prominent business men of Portland. The commissioners who direct its affairs are the following gentlemen: CHAS H. DODD, President of the Board, Wholesale Hardware Dealer; H. W. CORBITT, Vice-President, First National Bank; D. F. SHERMAN, Cashier Oregon National Bank; T. F. OSBORNE, Mfr. of Bags, Sails, &c., also President of Chamber of Commerce; D. S. COHEN, Wholesale Notions and Fancy Goods; WM. McFALL, Wholesale Paper; JAS. L. DUNLAP, Real Estate Broker; H. E. DOSCH, Retired Wholesale Boot and Shoe Merchant; ELLIS G. HUGHES, Capitalist.

All communications will receive the most careful attention. Personal visits to Portland are strongly advised. Seeing is Believing. Address correspondence simply.

The Oregon Immigration Board.

Portland, Oregon.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13.500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SHAFTING LATHE.

SECOND HAND. FOR SALE LOW.

Wood, Light & Co.'s make; 26 in. swing; 21 ft. bed; tank bed; automatic pump; three tool rest. Good order.

J. J. McCABE,

No. 68 Cortlandt St., New York.

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need apply in person, with references, to

THE EATON, COLE & BURNHAM CO.,
82 & 84 Fulton St., New York.

FOR SALE.

RAILS.

100 Tons Iron Rails, 35 lbs. to the yard Fit to relay. Address

JOSEPH HAYS & CO.,
180 Scranton Ave., Cleveland, O.

OLD METAL WANTED.

Heavy Brass, Copper and Brass Turnings; state quantity and price for spot cash.

E. A. WILLIAMS & SON,
107 Plymouth St., - - Jersey City, N. J.

AN old-established Manufacturing Concern, employing a capital of over $100,000 and 125 men, being cramped for space, owing to a steady growth of business, desires a new location with good railroad and water facilities; offers of land and a cash bonus to cover cost of new buildings and moving will have careful consideration.

Address

WM. B. STEWART,
Sing Sing, N. Y

TAKE NOTICE.

Representing a firm in Pottstown, Pa., who have foundry, machine shop, etc., attached, we want specialties such as boilers, engines, pumps, machinery, or what not, to manufacture either upon royalty or to make and sell. We have the plant, money and experience. It will pay you to write me.

H. H. MANSFIELD,
52 Wall St., New York.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address.

"MISSOURI,"

office of *The Iron Age*, 220 S. 4th St., Philadelphia.

FOR SALE.

Corliss Engine 14 x 48.
11 Tubular Boilers.

H. B. BIRTWELL,
343 N. 3d St., Philadelphia.

NOTICE

TO HARDWARE MANUFACTURERS

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,

Hardware Manufacturers' Agent,
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EUGENE BISSELL, Auctioneer.

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Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

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The largest portion of my trade comes from Iowa. The territory can be extended and trade increased if desired. This is a rare opportunity for any one wishing to step into a good business already thoroughly established. Reason for wishing to sell out—poor health. For any information desired pertaining to the business and location, I would refer you to Ross & Fuller, 33 Chambers St., N. Y.; Clement M. Biddle & Co., Philadelphia; the National State Bank of Burlington, Iowa, or the undersigned

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Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

YOUNG MAN to take charge of about 25 hands to act as superintendent of factory; must be thoroughly posted on presses and dies, should understand drafting. Must be a No. 1 man to handle men to good advantage and capable of making estimates of cost. A rare chance to right party. Should prefer a man with a little capital in order to permanently identify himself with the concern. Address at once, TOLEDO MACHINE & TOOL WORKS, Toledo, Ohio.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

AN EXPERIENCED MAN to take charge of Wire Nail Department. To the right party, good salary and permanent position. Address "WIRE NAIL," office of *The Iron Age*, Hamilton Building, Pittsburgh.

A SALESMAN, age from 25 to 40, wanted to sell steel, both crucible and open hearth; also forgings, malleable and steel castings, in Middle and Eastern States. State, age, experience and salary. Address "7-20-8," office of *The Iron Age*, 220 S. Fourth St., Philadelphia.

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CHEMIST to act as Analyst and Superintendent of a Chemical Works near Philadelphia; man preferred who has had five years or more experience, a portion of it as superintendent, preferably of a blast furnace. Address, with full particulars and ideas of salary, "ANALYST," office of *The Iron Age*, 220 So. 4th St., Philadelphia.

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TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING CO., Cuba, N. Y.

SUPERINTENDENT for a Bessemer Steel Works, engaged in the manufacture of soft steel. He must have had experience in the business, be acquainted with all its details and be able to manage men. To such a man a good salary will be paid. Address, with reference, "BESSEMER," office of *The Iron Age*, 66 and 68 Duane St., New York.

A GENERAL MANAGER or Foreman in a Foundry now in operation, running about ninety moulders, making light gated castings, both grey and malleable iron; persons applying for the position will please give reference and experience in making air furnace and cupola malleable iron castings. Address "AIR FURNACE," office of *The Iron Age*, 66 and 68 Duane St., New York.

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ATTENTION Lock and Builders' Hardware Manufacturers. A young married man, who is a practical manufacturer of Hardware, has had long experience as master mechanic of large works in Connecticut, an expert pattern and tool maker, and has a thorough knowledge of every detail of the business. Parties who are in need of an able man as manager or superintendent, please address "H. B. H." Box 100, office of *The Iron Age*, 66 and 68 Duane Street, New York.

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BY ENERGETIC YOUNG MAN. Has had eight years' experience with the Washburn & Moen Mfg. Co.; thoroughly posted on iron, steel and copper wire. Wants position to travel or in the house of some wire, wire goods or heavy hardware house. Address "WIRE, 91," office of *The Iron Age*, 66 and 68 Duane Street, New York.

A FOREMAN BLACKSMITH is open to an engagement; 27 years' practical experience; satisfactory reference. Address "T. 26," care of Lord & Thomas, Chicago.

BY A MAN of 30 years' experience in the steel trade, a position to take charge of rolls as foreman in a mill or hammer shop, or will undertake the entire control of a crucible steel plant. Address "FOREMAN," 73 Green St., Cumberland, Md.

OWING TO THE CLOSING of the Elmira Iron and Steel Rolling Mills on account of a strike, I am thrown out of employment and would like a situation as Billing or Shipping Clerk; ten years' experience; reference Elmira Rolling Mill Co. Address CHARLES J. ROOT, Elmira, N. Y.

AS SUPERINTENDENT in Iron or Steel Rolling Mill; have had 26 years' experience in manufacturing of merchant and structural iron with the Elmira Rolling Mill Co.; am out of employment owing to the closing of their plant. Address N. D. DOXEY, Elmira, N. Y.

SITUATION AS FOREMAN, by a Machinist and Draftsman, technical graduate; eight years' experience in machine shop and drafting room; familiar with modern methods and tools. Address "GRADUATE," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A THOROUGHLY experienced Hardwareman, a position as Traveler or Correspondent; has an experience of 15 years; for past six years had general charge of a large business, prior to which was on the road; fully competent to fill any important position in connection with the Builders' Hardware business. Address "A. M. B.," Box 7, office of *The Iron Age*, 66 and 68 Duane St., New York.

A POSITION as Secretary and Treasurer; prefer manufacturing, having had upward of 20 years' experience in that direction; am middle aged, married and have unexceptionable references as to capability and strict integrity. Address "NEW ENGLAND," Box 51, office of *The Iron Age*, 66 and 68 Duane St., New York.

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BY MIDDLE AGED MAN, as foreman of Architectural and Machine Foundry. Best of references. Address "ARCHITECTURAL," office of *The Iron Age*, 59 Dearborn st., Chicago

POSITION as Superintendent of Blast Furnace, by a practical man of experience in operating and burdening furnaces, including all chemical work; can take hold in any position pertaining to furnace; references furnished. Address "C.," Box 67, Wheeling, W. Va.

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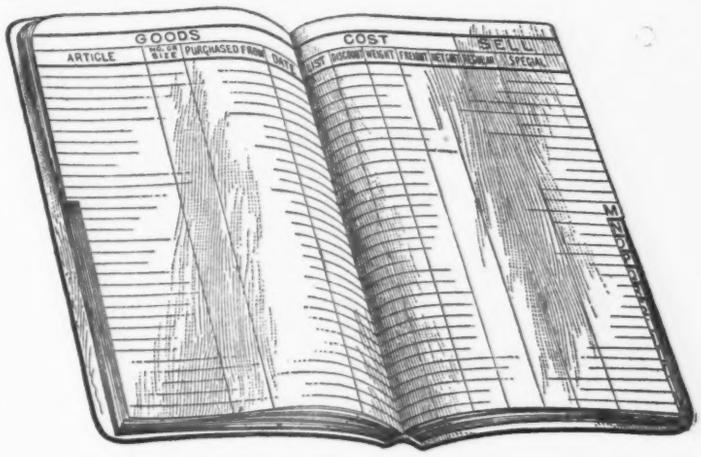
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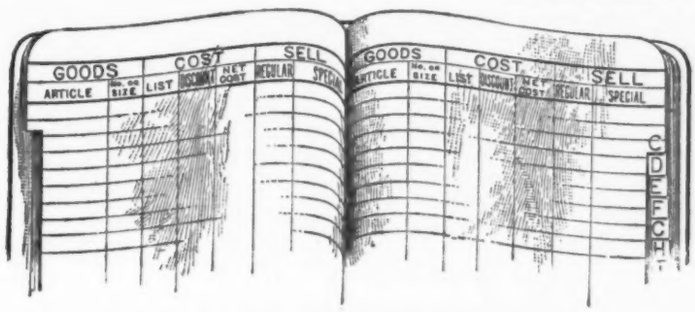
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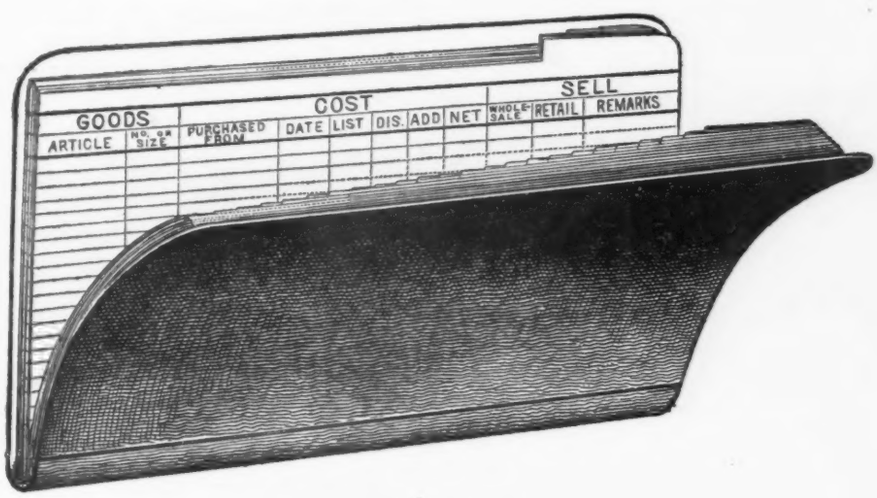
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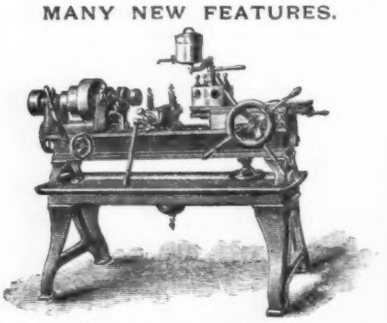
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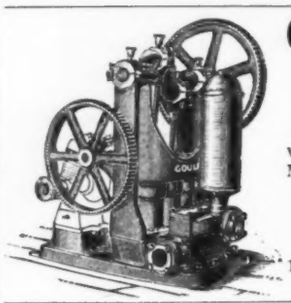
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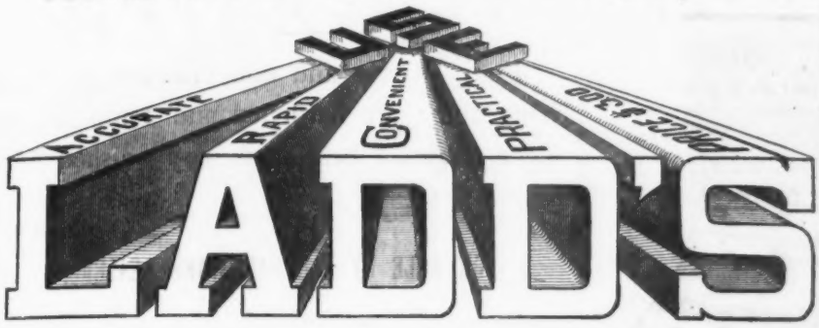


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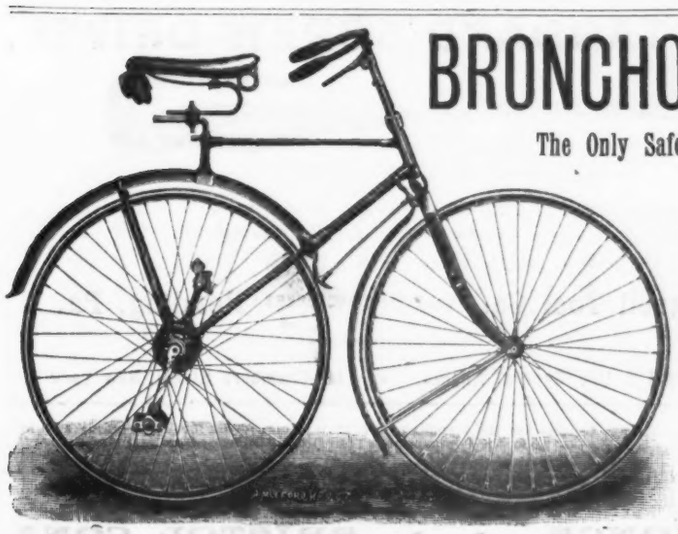
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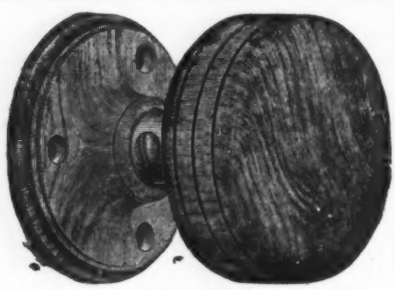
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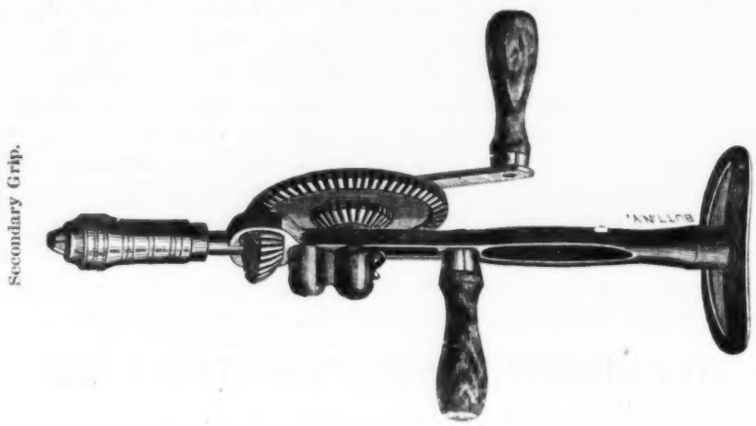
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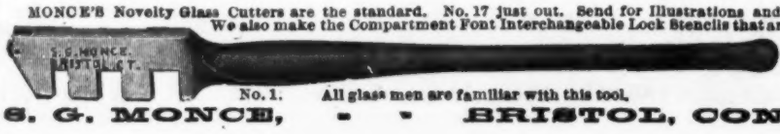
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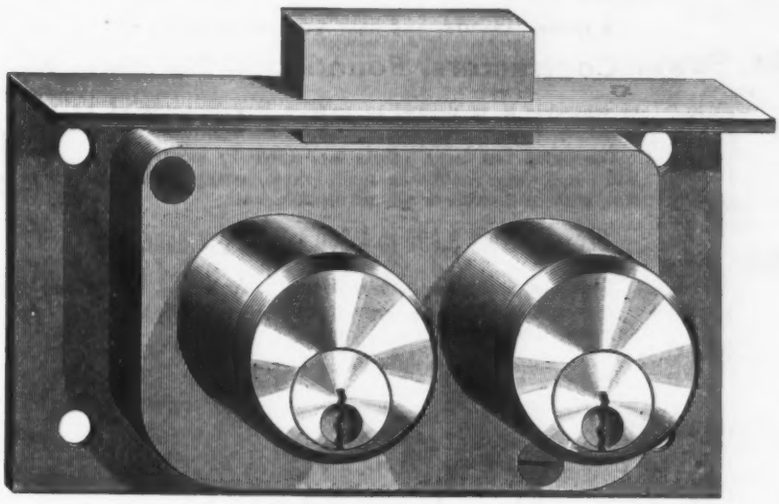


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Fig. 190.



Fig. 70.



or wherever it is desired to raise a large quantity of water by **hand power.**

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Fig. 209.



Fig. 381.



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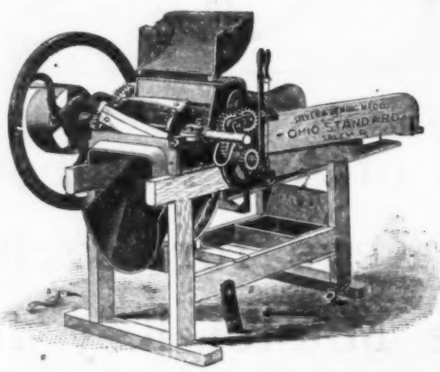


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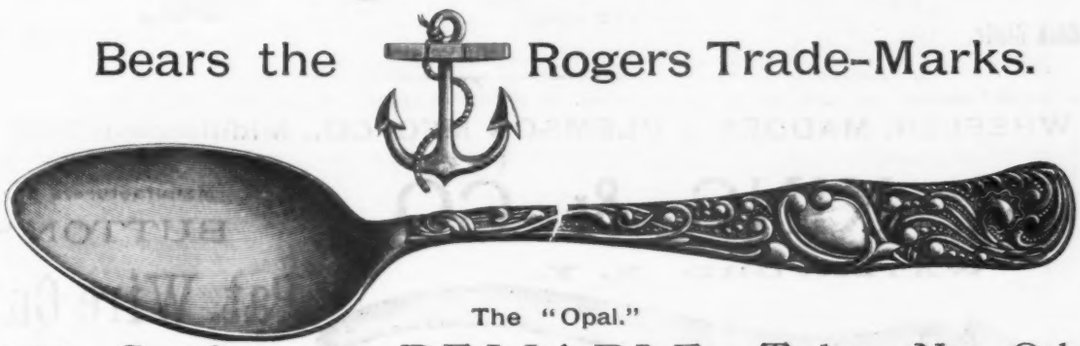
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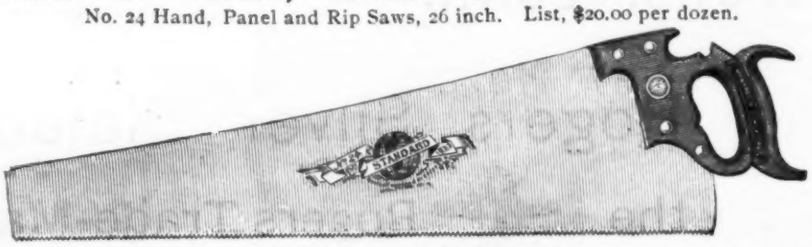
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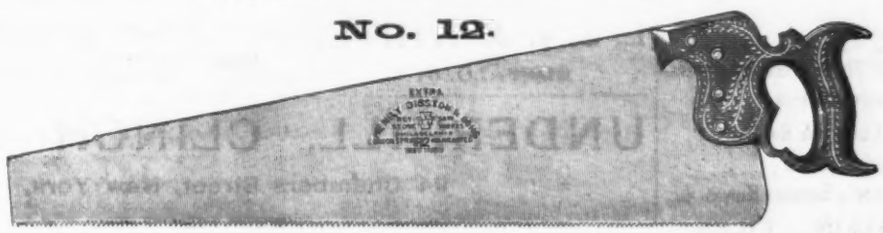
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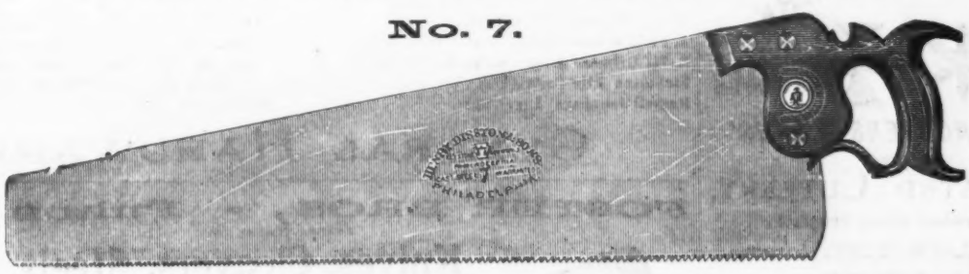
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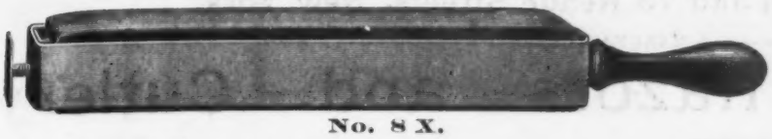


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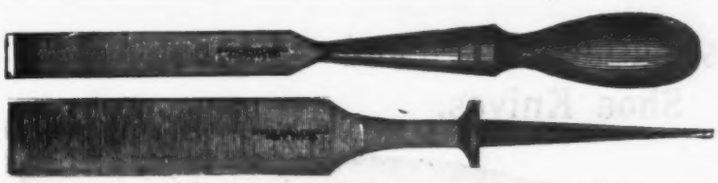
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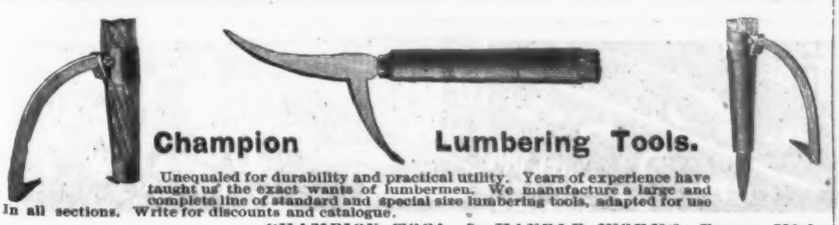
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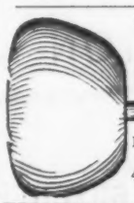
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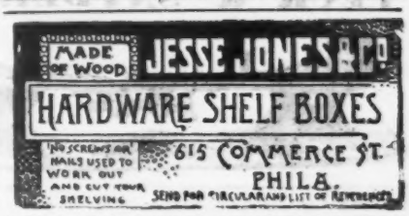
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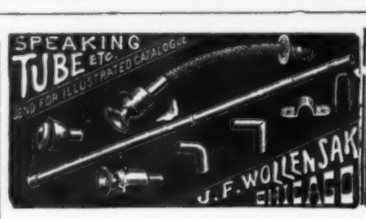
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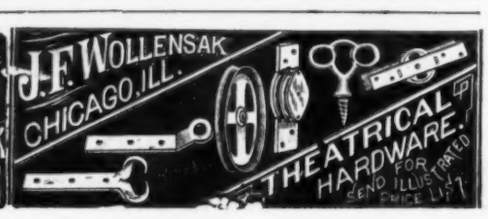
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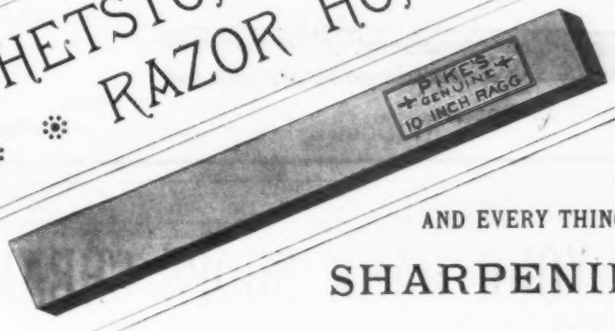
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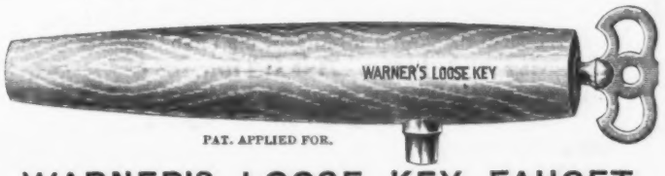


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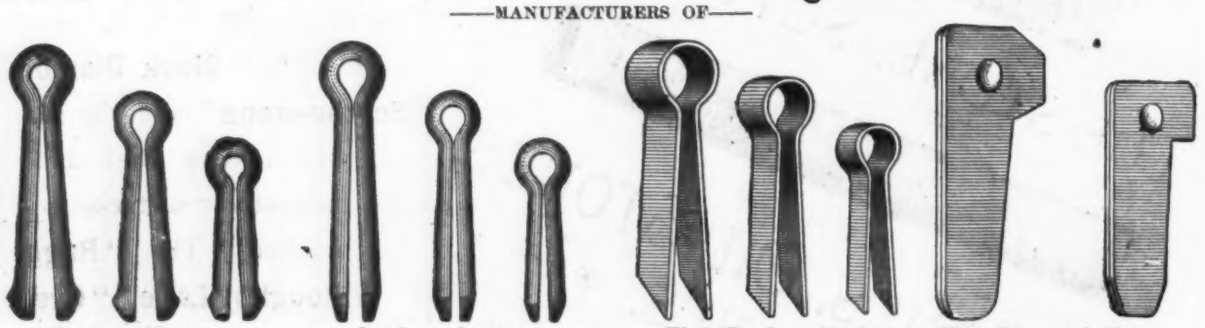
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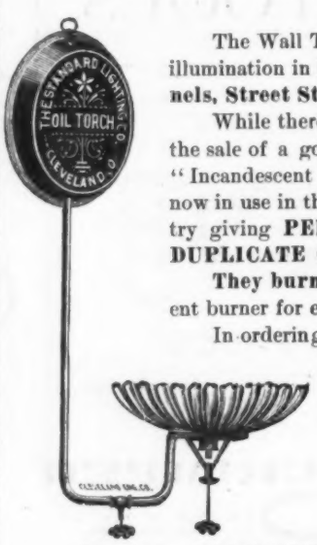


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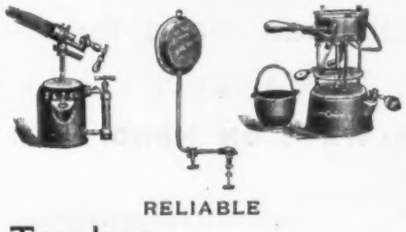
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TORCHES to burn Gasoline and Oil. **500,000 in use** Not affected by wind or weather.

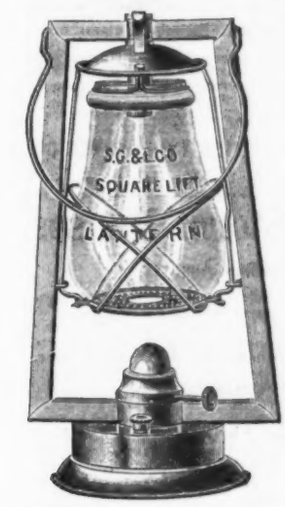
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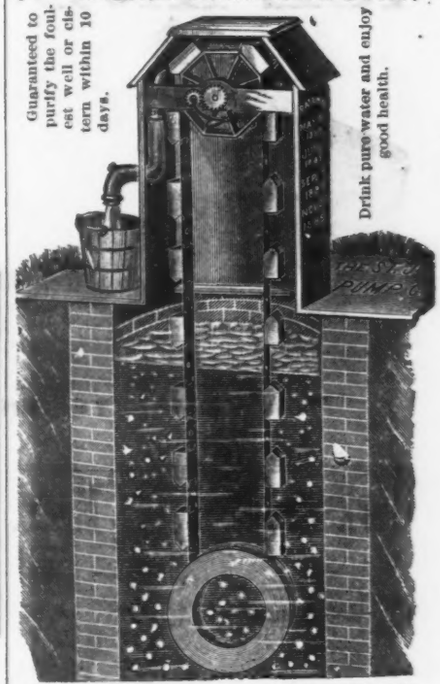
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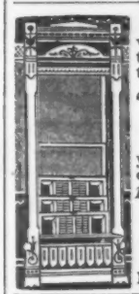
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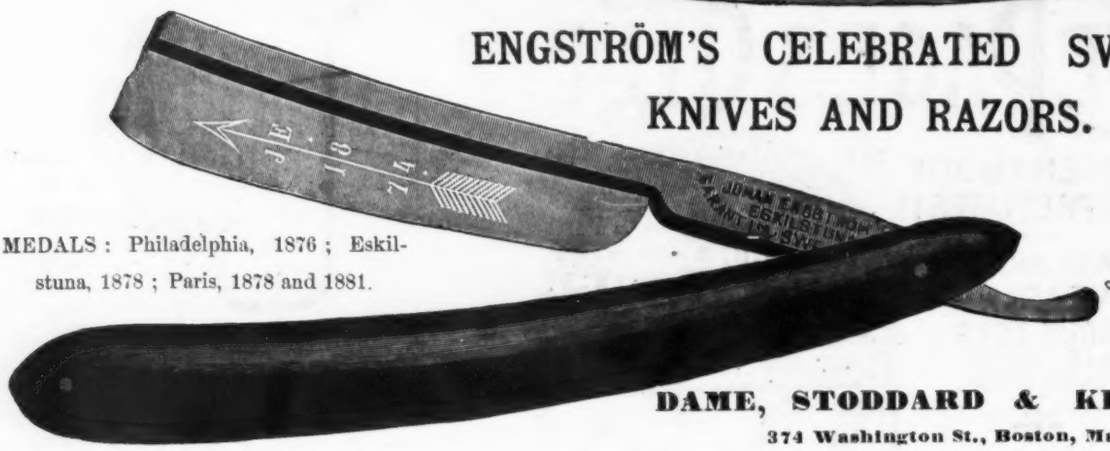
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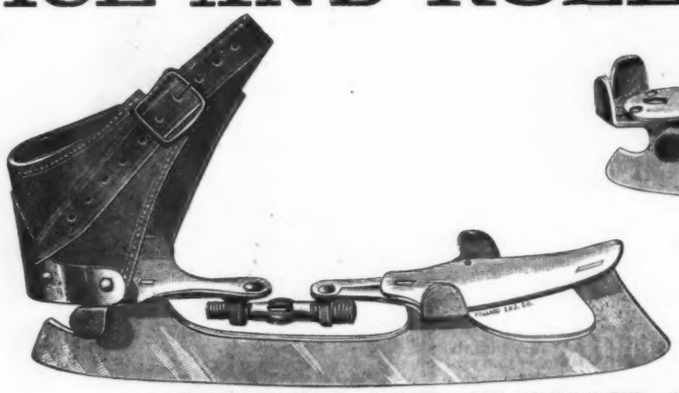
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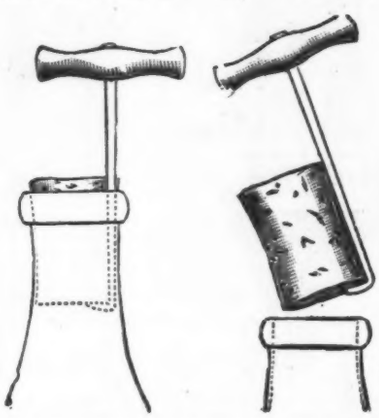


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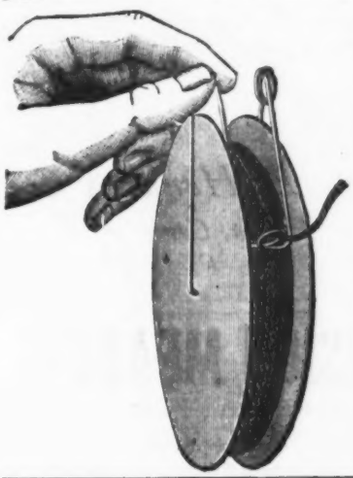
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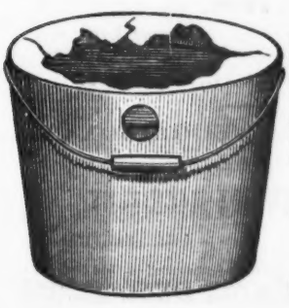


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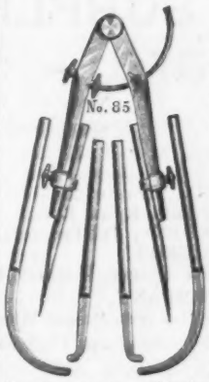
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JAMES SURPLESS. ROBT. M. DUNN. BENJAMIN S. ALDER.

SURPLESS, DUNN & ALDER,

Hardware - Commission - Merchants,

Nos. 97 Chambers and 79 Reade Streets, New York.

Representing the Following Manufacturers:

THE GUTTA PERCHA & RUBBER MANF'G CO., Rubber Belting, Packing, Hose, &c.
LORAIN WRENCH CO., "Lorain" Solid Case Hardened Wrenches.
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KEYSTONE LOCK WORKS, Jail Padlocks.
LINDSAY & McCUTCHEON, Strap and T Hinges, Washers, Hoop and Band Iron.
CRONK HANGER COMPANY, Barn Door Hangers, Patent Wire Cutter and Bender.
IOWA BARB WIRE CO., Barbed and Plain Fence Wire, Staples, &c.
EMPIRE PORTABLE FORGE CO., Forges, Blowers, Axle Pulleys, &c.
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THE WESTERN BLOCK CO., Wood and Wrought Iron Tackle Blocks.
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JOHN AUER, JR., Wrought Hooks, Hasps and Staples.
THE UPSON & WOODING MFG. CO., Dog Collars, Padlocks, &c.
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E. B. OWEN, Patent Wood Door Knobs.

☞ **Special attention given to the Export Trade.** ☜

The HENDRYX Braided Cord has in each cord the full number of wires stated. Finished in Tinned, Gilt or Gold, and will not tarnish.

Every box contains twelve rolls of 25 yards or 25 feet each.

Every roll contains exactly the length marked on package.

Keep the HENDRYX in stock—it is the leading cord.

WIRE PICTURE CORD.

You cannot afford to sell "short cord."

Nobody puts up short-length cord, of course; but did you ever test yours by measuring? Try it and see.

The HENDRYX is absolutely full length.

Price List free.

The Andrew B. Hendryx Co.
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118 Chambers St., - New York

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TWO AND THREE PLY ROOFING.
ROOFING PITCH.
AMERICAN AXE & TOOL CO. FOR
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MANUFACTURERS' AGENT,

Hardware Specialties

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SOLE AGENT FOR THE

Acme Bread Slicer and Bean Splitter.

118 Chambers St., New York.

"Reid's Little Wonder Tack Pull."

The most sensible. The best. The cheapest Tack Pull ever offered to the trade.

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WEST TROY, - - - ***N. Y.***

THE MUMFORD EXTENSION MEASURE



The most practical measure in use. It saves time and money and gives accurate measurements. All who have used THE MUMFORD EXTENSION MEASURE consider it a necessity.

Made in three sizes, 18, 24, 36 inches.

		Price List.
An 18-inch measure will register	⅛ inch to 34 inches	$ .80
A 24-inch "	⅛ inch to 46 inches	1.00
A 36-inch "	⅛ inch to 70 inches	1.20

Free delivery to any point within the United States. Write for trade discount.

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FRANK W. McLEAN,

Heavy and Shelf Hardware, Iron, Steel and Nails.

Also RAILWAY, MANUFACTURERS', MINE and CONTRACTORS' SUPPLIES.

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METAL-EDGE BOXES.

USE NO OTHERS.



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PAID UP CAPITAL, $700,000.

NATIONAL METAL-EDGE BOX CO.,

MANUFACTURERS OF

PATENTED PAPER BOX MACHINERY,

401 to 415 APPLETREE ST., - - PHILADELPHIA, PA.

Every manufacturer using boxes is interested in this box. We shall be pleased to furnish sample boxes, catalogue of machinery and all information relative to the manufacture of boxes under our patent system.


No. 5 Meat Chopper.

Enterprise Meat Choppers

ARE THE BEST IN THE WORLD.

TEN SIZES, $2.00 TO $200.00.


No. 41 Meat Chopper.

OUR POWER CHOPPERS

Do Not Heat the Meat.
Do Not Discolor the Meat.
Are Almost Noiseless.
Ice Can be Worked Through Them.
THEY SAVE POWER.
Do the Work Rapidly.
Do Not Grind the Meat.
Can Be Used as Mixers.
Are Easily Cleaned.

Catalogue Mailed FREE.


No. 22 Meat Chopper.


No. 41 Meat Chopper.


No. 52 Meat Chopper.



No. 10, Large Family Size, $3.00.

They are unexcelled for chopping


Showing Machine Taken Apart.

Our Family Size Meat Chopper No. 10 has recently been improved in an essential feature. A drop forged steel plate (standard size, 5-32 inch holes) has lately been substituted for the ordinary cast plate, thus making the chopper capable of cutting 50% FASTER, FINER and EASIER than heretofore.


No. 52 Meat Chopper.

OUR FAMILY SIZE MEAT CHOPPERS are SOLD BY ALL HARDWARE AND HOUSE FURNISHING STORES.


No. 62 Meat Chopper.

Sausage Meat, Mince Meat, Hamburg Steak for Dyspeptics, Hash, Tripe, Hog's-Head Cheese Suet, Clams, Chicken Croquettes, Chicken Salad, Scrap Meat for Poultry, Cod Fish, Peppers, Corn for Fritters, Scrapple, Cocoanut, Stale Bread for Bread Crumbs, &c. Also for making Beef Tea for Invalids, Mashing Potatoes, Pulverizing Crackers, &c., &c., &c.

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Chicopee Falls, Mass.

MANUFACTURERS OF

Spring Calipers

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Spring Screw Caliper with Patent Washer.

FINE Machinists' TOOLS AND FIREARMS.

—OUR—

Shooting Gallery Rifle

IS THE FAVORITE EVERYWHERE.

Send for Illustrated Catalogue.

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Prindle Mfg. Co.
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Zimmerman's Blind Adjusters.
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Fibre Head Mallets.

NAYLOR & FLACK,

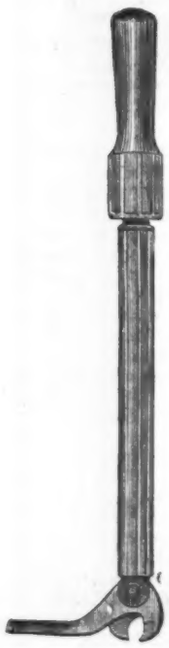
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AMERICAN WIRE GOODS CO.
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BELLAIRE STAMPING CO., Lanterns and Zinc Oilers
L. D. FROST & SON, Carriage and Tire Bolts.
MARYLAND TACK CO.
STARRS BROS. BELL CO.
SENCENBAUGH & IVES, Parlor Door Hangers.
WINCHESTER HANDLE MFG. CO.

WE WISH TO CALL YOUR ATTENTION TO

OUR 1890 NAIL PULLER.



It is the only Nail Puller that cannot get out of repair.
It is without springs.
It is finely polished, and
It is the only Nickel Plated Nail Puller on the market.
It is drop forged from fine tool steel.
It is thoroughly inspected and adjusted with great care.
It is impossible to mash your hands in using it

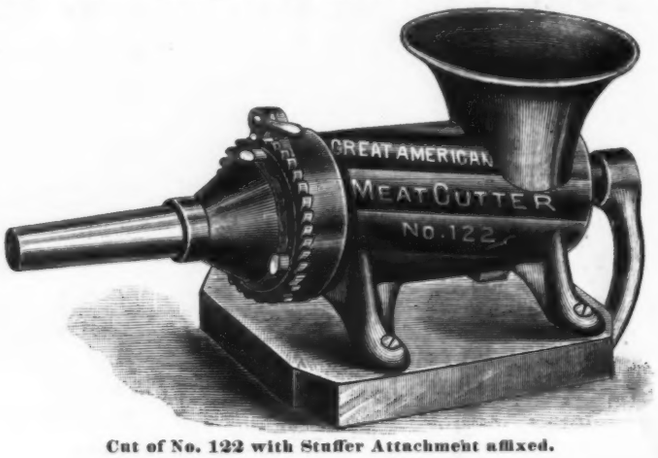
Price $30.00 per dozen. **Discount to the Trade.**

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SOLE MANUFACTURERS.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street, P. O. Box 1042, New York City.

WM. J. LLOYD MANUFACTURING CO., PHILADELPHIA, PA.



Cut of No. 122 with Stuffer Attachment affixed.

GREAT AMERICAN MEAT CUTTER AND STUFFER ATTACHMENT.

PATENT REVERSIBLE KNIFE.

Best in the Market.

No. 112,	with Clamp,	will cut	2 lbs.	per minute,	each,	$2.00
" 116,	" "	"	2 "	"	"	2.75
" 118,	" "	"	3 "	"	"	3.00
" 120,			3 "	"	"	2.50
" 122,			4 "	"	"	4.00
" 124,	40-inch Fly-Wheel,	300 "	per hour,	each,		25.00
" 126,	to screw to table,	200 "	"	"		8.00
" 128,	40-inch Fly-Wheel,	350 "	"	"		30.00
" 130,	Geared, ½ power,	250 "	"	"		20.00
" 132,	40-inch Fly-Wheel,	400 "	"	"		35.00
" 134,	Power,	750 "	"	"		35.00
" 136,	"	1000 "	"	"		50.00

WRITE FOR CATALOGUE.

Cronk's Patent Wire Cutter and Bender.

This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is specially adapted to farmers' use in building Wire Fence, &c.

Our reasons for claiming that we have the best Pliers in the market are:

FIRST.—We use the best Tool Steel and they are nicely finished.

SECOND.—We combine both Flat and Round-Nosed Pliers in one, the concave and convex circles between the handles are used for bending wire in any desired shape.

THIRD.—The cupping in the Nose is used for pulling tacks, brads or nails, and can also be used in place of Hill's Hog Ringer.

FOURTH.—We can cut Barb Wire, Barb Belt or any kind of Wire used for Fencing, purposes. We also claim that we have the only Plier made that the Cutting Jaws cannot be broken.

By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.



8 in. per doz. pair, $15.00
10 in. " " 21.00

CRONK HANGER CO., Elmira, N. Y.

SURPLESS, DUNN & ALDER, General Agents. - - 97 Chambers St. and 79 Reade St., New York.

The F. F. ADAMS CO.,

ERIE, PA.,

MANUFACTURERS OF

Rat and Mouse Traps,

Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

SEND FOR CATALOGUE.





WHEELER PATENT CAN OPENER COMPANY.

Surpasses all other instruments for opening cans, irrespective of shape or size.
They are well recommended by those who have them in use. It is the only can opener that will cut off the top of paint pails. There are hundreds in use for this purpose.
It cuts stove pipe, tin pipe, &c., to perfection. The blade is made of the best cutlery steel, and the spring is of the most reliable make. For sale by all wholesale hardware dealers. Samples will be forwarded to any address on receipt of 50c. Address **Wheeler Patent Can Opener Co.,** 102 South Main St., St. Louis, Mo.

Claims Don't Amount to Anything

unless sustained by facts. We made the following claim for the BUFFALO DAMPER before the Judges of Award at the Paris Exposition. How they regarded the claim and what they thought of the Damper is indicated by its receiving the Highest Award at their hands.



Damper for Stove Pipe.



Damper Clip for Hot Air Pipe.

CLAIM. Being supported by a single bearing, this damper takes its proper position when the tension is applied. As it does not require a hole in the pipe for an opposite bearing, it avoids the necessity for care in placing the holes directly opposite each other, so that the damper plate may hang true and not strike either side of the pipe. The necessary tension is supplied by a screw, thus avoiding making use of the elasticity of the casting or of a separate spring, which are liable to lose their elastic qualities when subjected to heat. The handle being made of wood, does not become disagreeably warm. The simplicity of construction and the ease and rapidity with which the damper may be inserted in the pipe are all important considerations, and those qualities, together with the avoidance of the use of springs, and the fact that it has a cool and attractive handle, are the points in which we claim that the BUFFALO DAMPER excels all others.

Write for descriptive circular and prices to sole manufacturers,

SIDNEY SHEPARD & CO., BUFFALO, N. Y.

C. SIDNEY SHEPARD & CO., CHICAGO, ILL.



W. R. OSTRANDER & CO.,

195 and 197 FULTON ST., NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



Porcelain Lined Lemon Squeezers



Best Common Mouse Traps, Steak Hammers Boot Jacks, Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

Ripley Mfg. Co. Unionville, Conn.

EDWARD S. HOTCHKISS.

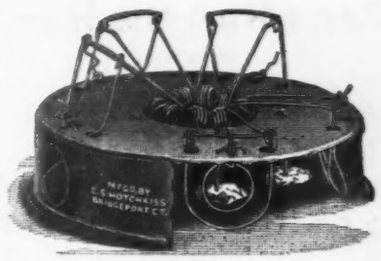
BRIDGEPORT, CONN.

Manufacturer of

HARDWARE.

Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches, Horse and Toilet Clippers, Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016

Standard Coat & Hat Hook.



U. S. PATENTS. Oct., 1875. Oct., 1884. Nov., 1887. Dec., 1887. England, France and Germany.

Automatic Machinery and Special Tools made to order.

HAMBLIN & RUSSELL MFG. CO., Worcester, Mass.

HARDWARE SPECIALTIES AND STANDARD WIRE GOODS.

ROPP'S

Commercial Calculator

ARITHMETIC SIMPLIFIED.

The first part contains 125 Commercial Tables of *ready* or instantaneous calculations in all kinds of Grain, Stock, Hay, Coal, Cotton, Merchandise; in Interest, Wages Trade Discount, Exchange; in measurements of Logs, Lumber, Land, Cisterns, Tanks, Bins, Wagon-beds, Corn-cribs Cord-wood and Carpenters', Plasterers', Masons' and Painters' work.
The second part is a complete Arithmetic, in which all its rules and principles, from Numeration to Mensuration, are clearly stated fully explained and practically applied, giving all the *simplest, shortest* and most *convenient* methods known for *rapid* calculation.

Complete in One Volume $0 50
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DAVID WILLIAMS, Bookseller and Publisher,

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Stove Trucks, Towel Rollers, Hat and Coat Racks, Lemon Squeezers, Alarm Tills, Slaw and Kraut Kutters, Knife Trays, Potato Mashers, Saw Bucks, &c. Don't you need any?

60,000,000 (MILLION)

Looks like a large number, but more than half that amount of people selected the President of the U. S. from the city of Indianapolis, where we've been for many years making for and supplying the trade with goods that the number of people mentioned at the head of this card are using, such as

BARREL TRUCKS,

TUCKER & DORSEY MFG. CO.

Indianapolis, Ind.

Can't Hurt the Hand

IS THE

Cheapest,
Strongest,
Quickest,
Best.

WHAT?

SCRANTON'S

IMPROVED

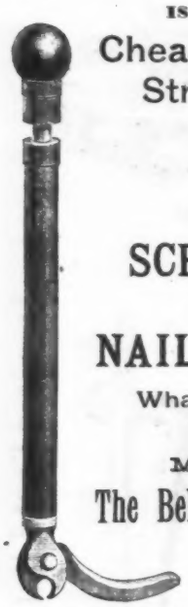
NAIL PULLER.

What more do you want?

MADE BY

The Belden Machine Co.,

New Haven, Ct.



S. A. HAINES CO., - Selling Agents,

90 Chambers St., New York.

Builders' Hardware. A manual for Architects, Builders and Housefurnishers. By CLARENCE H. BLACKWELL. Illustrated. Cloth.....$6.00

For Sale by DAVID WILLIAMS, 66 and 68 Duane St., N. Y

Wrought Steel Hollow Ware.



"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.

HORACE E. BRITTON, Successor to JOSHUA BRITTON & SON, Stoughton, Mass.



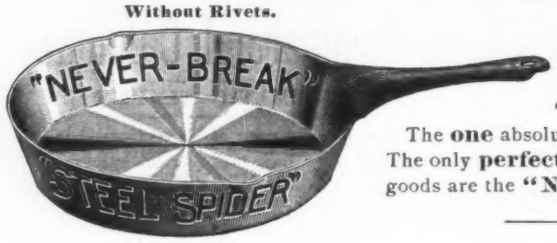
MAKER OF

Awls and Henry's Patent Combination Haft,

containing six Brad-Awls, one Chisel, Screw Driver, Diamond-Point Awl, Marking Awl, Tack Puller and Reamer. Send for Circular and Prices. Full set sent post-paid on receipt of $1.00 (no stamps).

"NEVER-BREAK" COLD HANDLE STEEL SPIDERS "NEVER-BREAK"

Without Rivets.



All One Piece.

The only **One Piece** spider with cold handle is the **"Never-Break."**

The **one** absolutely **clean** handle.

The only **perfectly** polished **steel** goods are the **"Never-Break."**

Riveted Handle.



Only Two Pieces.

Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

A FULL ASSORTMENT OF WROUGHT STEEL HOLLOW WARE.

Manufactured only by **THE BRONSON SUPPLY CO., Cleveland, Ohio.** N. Y. Office, 51 Cliff St.



THE SWIFT MILL.

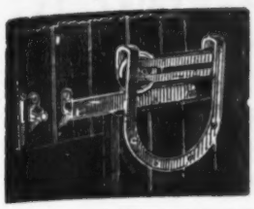
ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.



Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.



The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. LANE'S PATENT TRACK is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by **LANE BROS.,** Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street NEW YORK.

DON'T BUY A NEW LOCK, JUST BUY A DIFFERENT KEY.



A CHANGEABLE KEY Self-Setting Combination LOCK. ABSOLUTE SECURITY.

MANUFACTURED BY THE UNIVERSAL Lock Co. OF NEW YORK.

This lock differs from all others in the fact that it will set itself to any one of 4013 different keys with which the user may choose to lock it. Only the key used in locking will unlock it.

The advantage will naturally become apparent when for any reason whatever the user wishes to change the means of securing his premises, he need only buy a new key. Obviously as many different locks for securing the premises will be available as there are keys in the possession of the holder.

PRICE LIST.

No. 1 (with Chain).....	per dozen,	$24.00
" 1.....	"	21.00
" 2.....	"	18.00
" 3.....	"	15.00

Extra Keys, 10 cents each.

NOTE.—Keys numbered from 1 to 4013 inclusively.

—SALES DEPOTS:—

John H. Graham & Co., - - 113 Chambers St., New York.
C. H. Gurney Company, - 247-249 Lake St., Chicago, Ill.

ATTENTION.

CUSTOM HOUSE, PORTLAND, MAINE, July 13, 1890.

AMES SWORD CO., Chicopee, Mass.

GENTLEMEN: I am glad to learn that your locks are to be adopted by the Treasury Department for the bonded warehouses. The samples from your works sent here last fall were thoroughly tested during the winter and proved satisfactory.

Your obedient servant,

(Signed) CHAS. W. ROBERTS, Supt. of Warehouses.

PATENT PERFECTION PADLOCK,

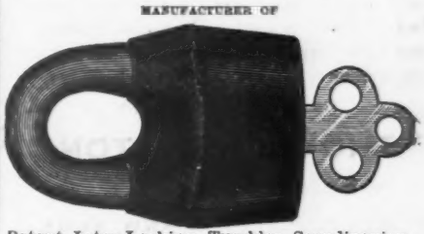
MANUFACTURED BY

AMES SWORD CO., - Chicopee, Mass., U. S. A.

KEYSTONE LOCK WORKS,

E. T. FRAIM, Lancaster, Pa., U. S. A.

MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS.** 44 different grades and sizes.

Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

SURPLESS, DUNN & ALDER,

General Agents, 97 Chambers St., New York.

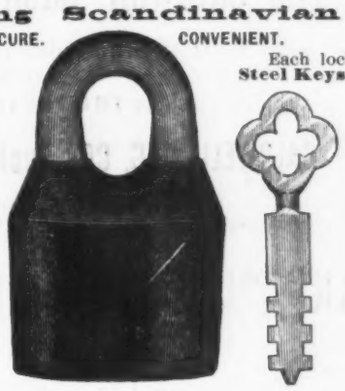
Self-Locking Scandinavian Padlocks.

NEW LINE. SECURE. CONVENIENT. DURABLE

In compliance with popular demands for a lower priced line of padlocks to work on our self-locking principle, we are now making a

Special, Cheap, New Line.

Self-Locking, with Maroon Finish and Polished Shackles



Each lock has two handsome **Cast Steel Keys** of unique design and light in weight, as shown on accompanying cut. This line is made especially for export and cheap trade.

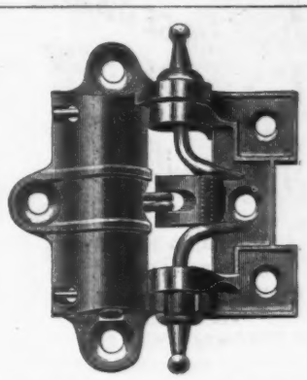
Brass, Bronze Mal. Iron and Nickel Plated Self-Locking Scandinavian Padlocks.

W. DODMAN, Gen'l Agent, 103 Chambers Street, New York, N. Y.

Slaymaker, Barry & Co.

Manufacturers,

Lancaster, Pa., U. S. A.

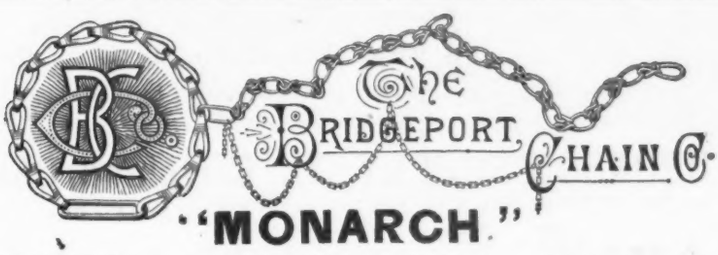


NEW IDEA SPRING HINGE

holds the door strongest when closed, resistance gradually decreases in opening, and increases in closing the door. A covered (patented) hold back Spring Hinge. Full particulars. Free Sample and Prices by mentioning this paper.

STOVER MAN'F'G CO.,

145 River St., Freeport, Ill.

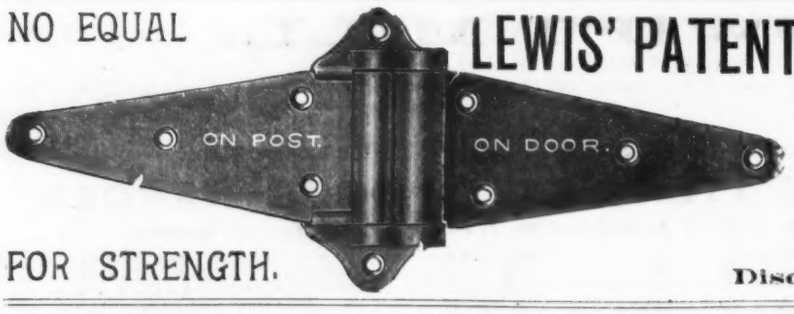


"MONARCH."

"MONARCH" SASH CHAIN—Made of a Bronze Metal having great tensile strength. The most reliable, lowest priced, and best Sash Chain in America. Also Steel Sash Chains, Triumph Wire Chains, Plumbers' Safety Chains, &c. Architects generally are specifying the Sash Chains made by

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn. Send for catalogue

NO EQUAL



FOR STRENGTH.

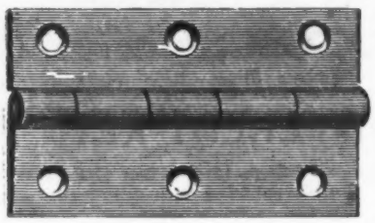
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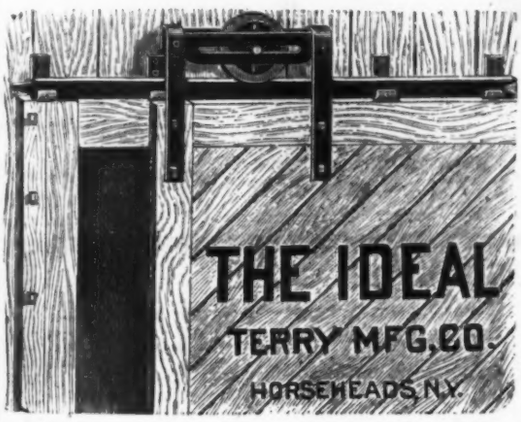


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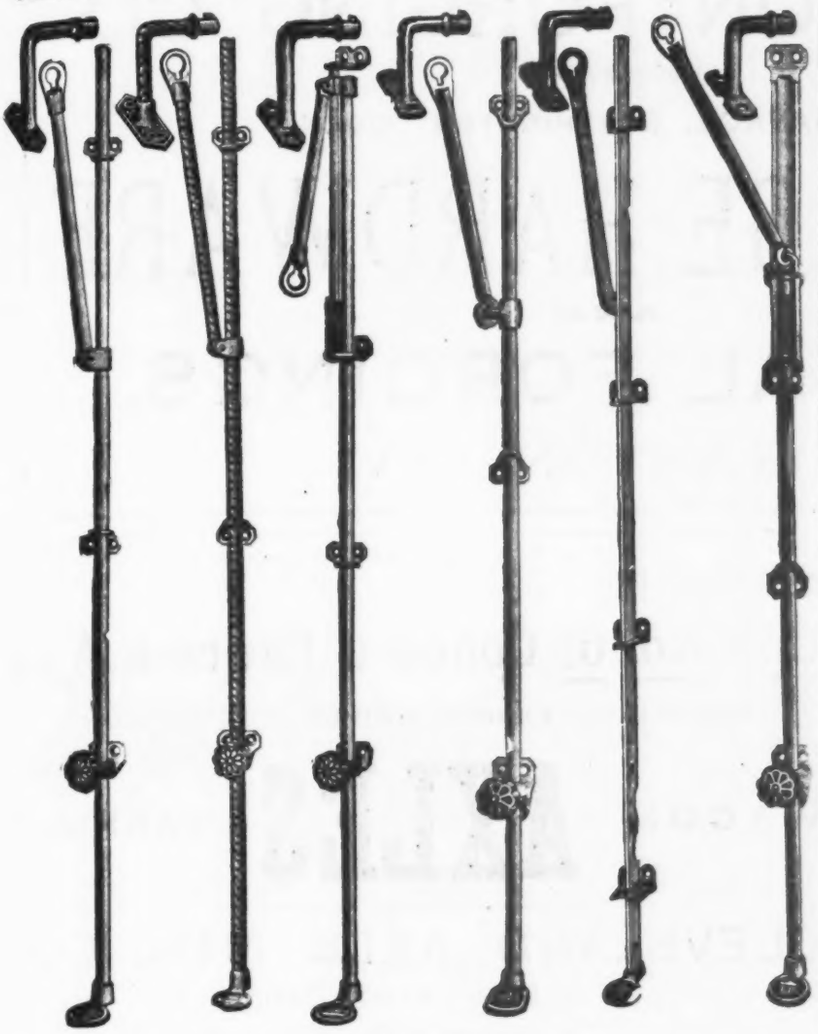
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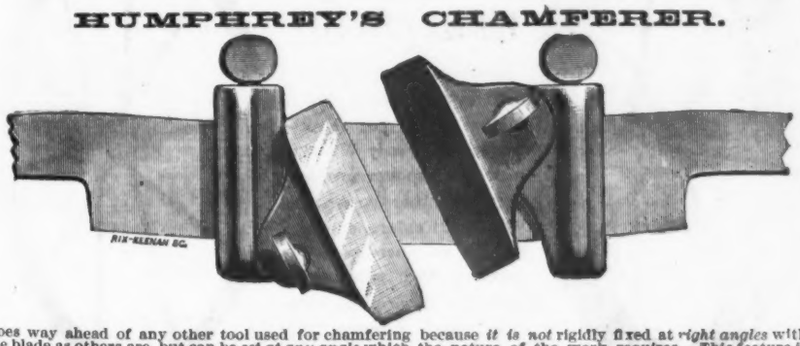
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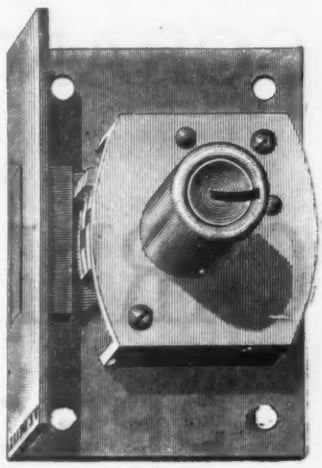
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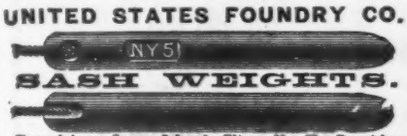
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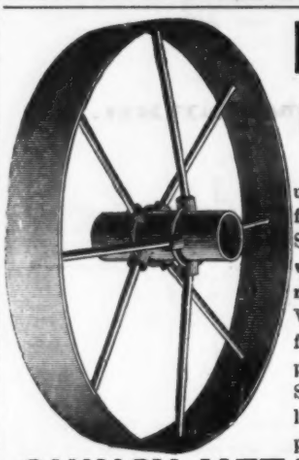
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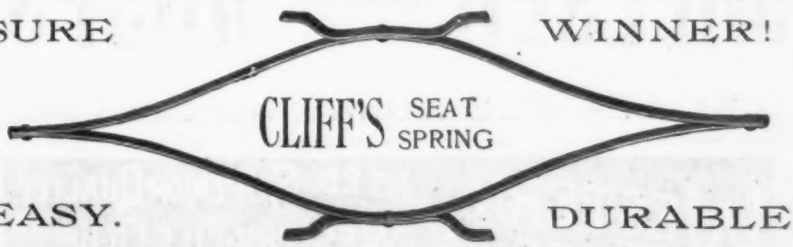
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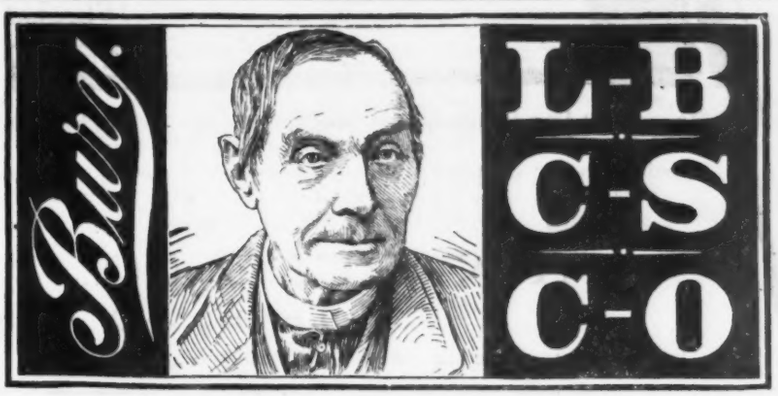
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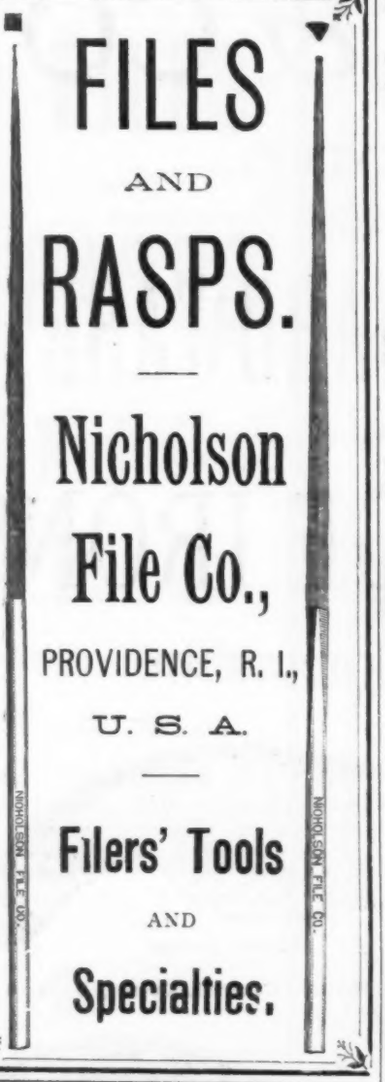
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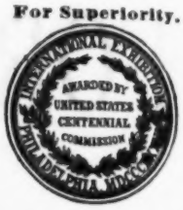


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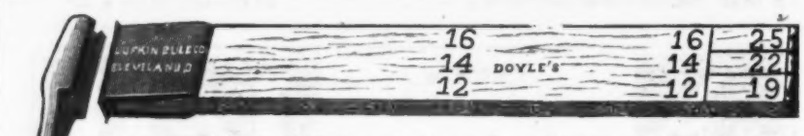
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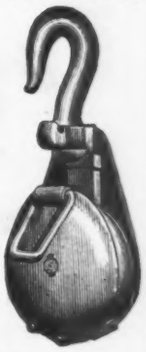
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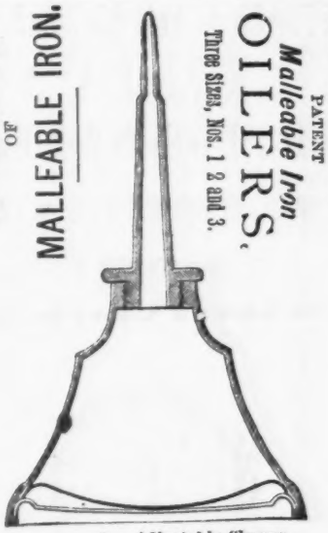
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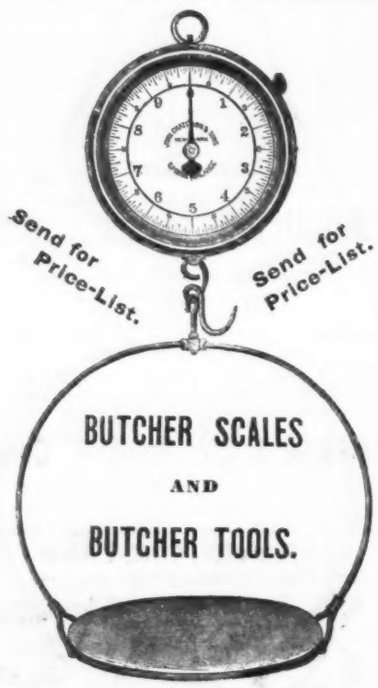
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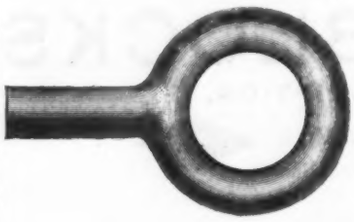
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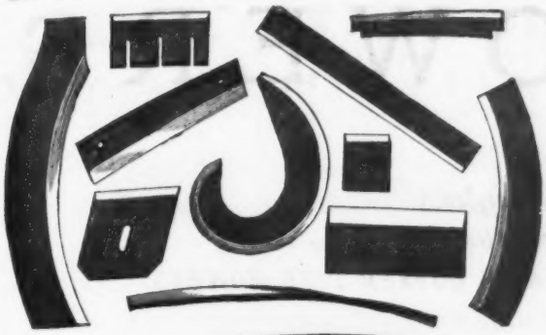
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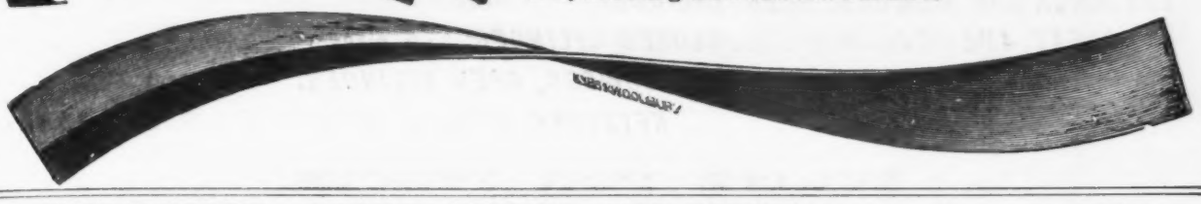
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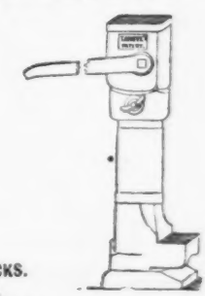
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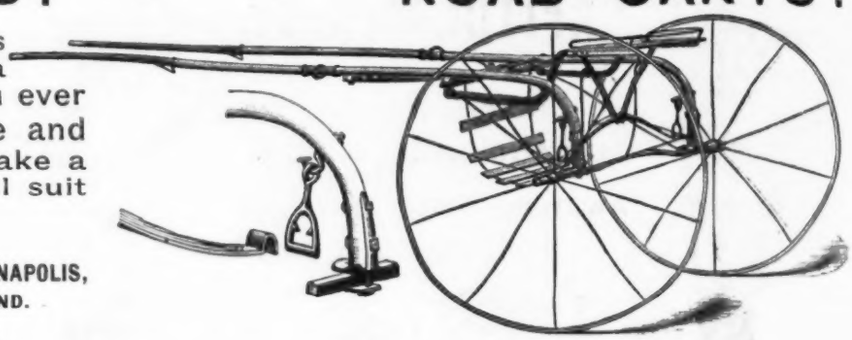
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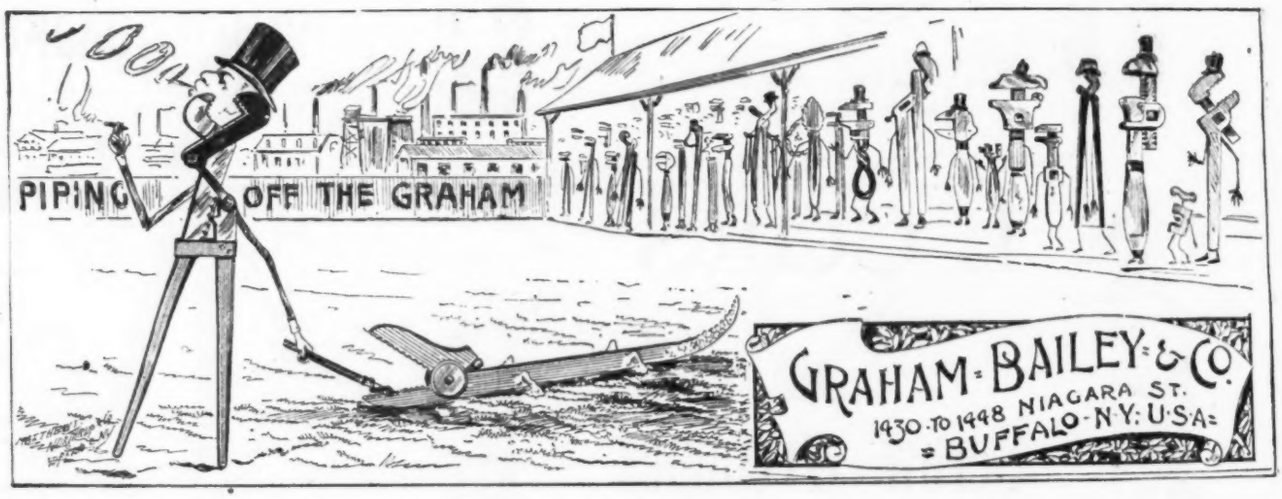
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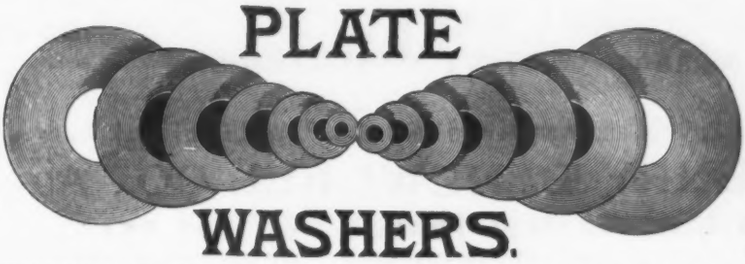
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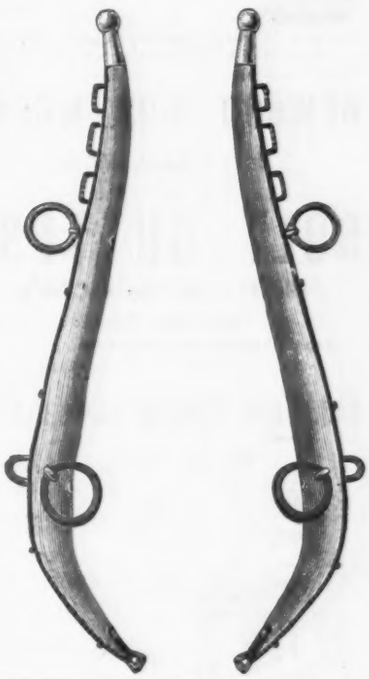
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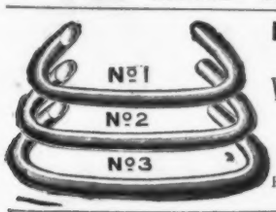
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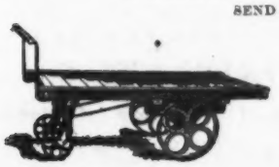


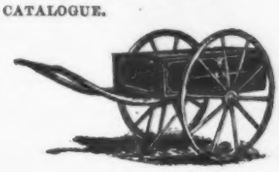
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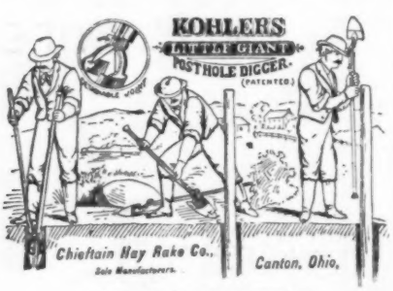
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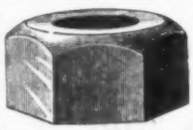
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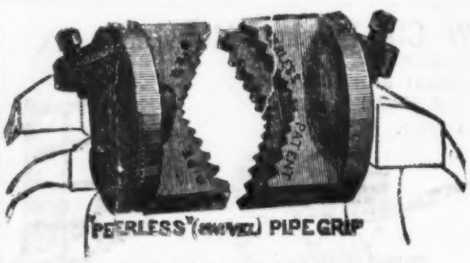
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Southington Cutlery Co., Southington, Conn.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dampers.
Shepard, Sidney & Co., Buffalo, N. Y.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horsehead, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass
Buffalo Forge Co., Buffalo, N. Y.
Burnham, G. & Co., Worcester, Mass.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Dripping Pans.
St. Louis Dripping Pan Co., St. Louis, Mo.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y,

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Foster Bros., Fulton, N. Y.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson, Van Winkle & Co., Newark, N. J
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of.*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Wheels.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
Waite & Van Harlingen, Phila., Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio
Cleveland & Hardwick, Erie, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Harrisburg Car Mfg. Co., Harrisburg, Pa.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless. Dunn & Alder, 97 Chamber N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.
Warner, H. A. & A. H., Bristol, Conn.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick. *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son. Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.

(See Alphabetical Index, Page 94.)

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fruit Press.
Paine, Diehl & Co., Philadelphia, Pa.

Fuel Burner.
Aerated Fuel Co., Springfield, Mass.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
Russia Cement Co., Gloucester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hair Crimpers.
Chicago Nickel Works, Chicago, Ill.

Hames.
Wilcox, Wm. Mfg. Co., Middletown, Ct.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Salomon, L., 118 Chambers, New York.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit, Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co, 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., New Burg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Suppiee Hdw. Co., Philadelphia, Pa.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. R., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moers, E. M., Cincinnati, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. Fdy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Norfolk & Western R. R. Co.
Portland, Oregon.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.
Graham, John H. & Co., 113 Chambers St., N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Phi'adelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.
Wilcox, Wm. Mfg. Co., Middletown, Ct.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co, Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris, Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Long & Allstatter Co., Hamilton, O.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Coverings.
National Pulley Covering Co., Baltimore, Md.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
Long & Allstatter Co., Hamilton, Ohio.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

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Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Schwarsenberg Bros. & Co.,Cleveland,O
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron Fdry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Mumford, C. M., Springfield, Mass.
Stanley Rule & Level Co., 29 Chambers,

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co, Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Peck & Snyder, 124 Nassau, N. Y.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Malden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co,, Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Fittings.
Kuhn Bros., Dayton, Ohio.

Steam Hammers, &c., *Makers of.*
Dieneit & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

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Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros, 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reilly, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Chess, Cook & Co., Pittsburgh, Pa. Ohio.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Butts & Ordway, Boston, Mass.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Barlass Bros., Janesville, Wis.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.
Todd, H. B., Meriden, Conn.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y.
Mason Regulator Co., Boston, Mass.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 25 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Mason Iron Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Howard & Morse, 45 Fulton, N. Y.
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Howard & Morse, 45 Fulton, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
Howard & Morse, 45 Fulton, N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty,
Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis,
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Frazer, Russell, 79 Centre, N. Y.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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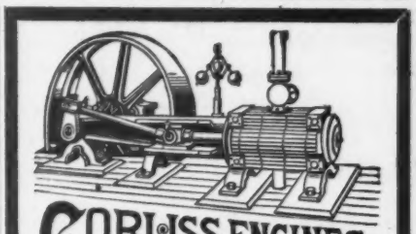
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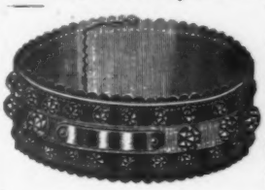
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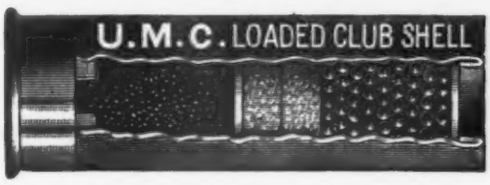
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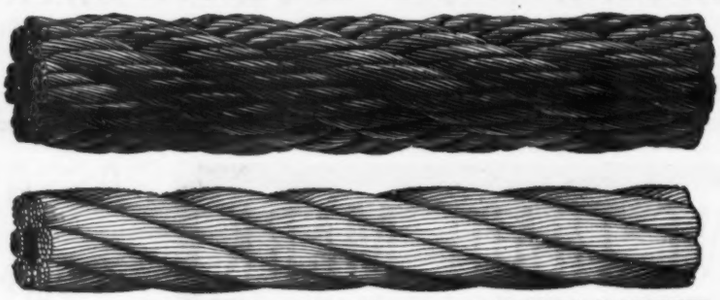
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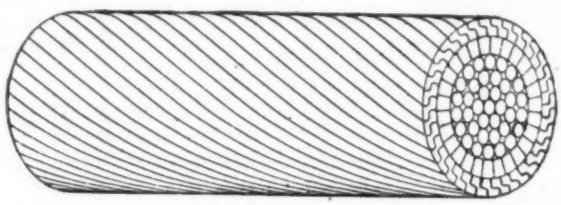
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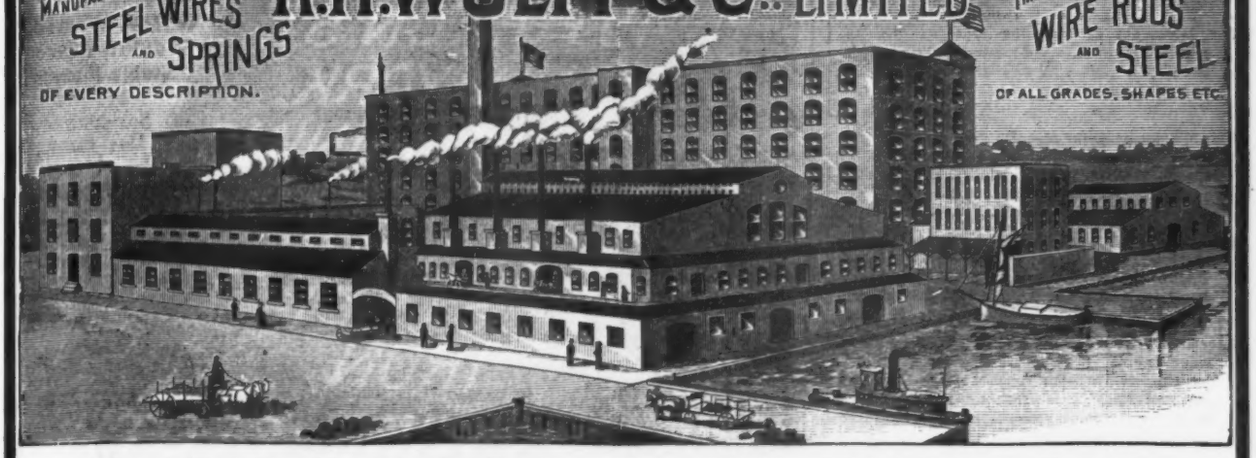
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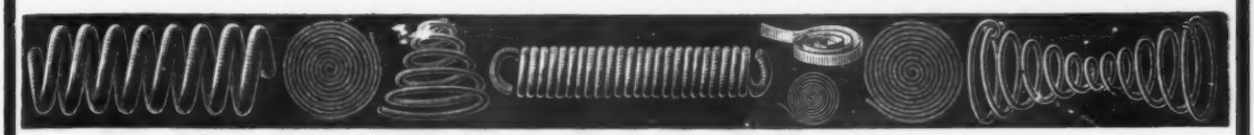
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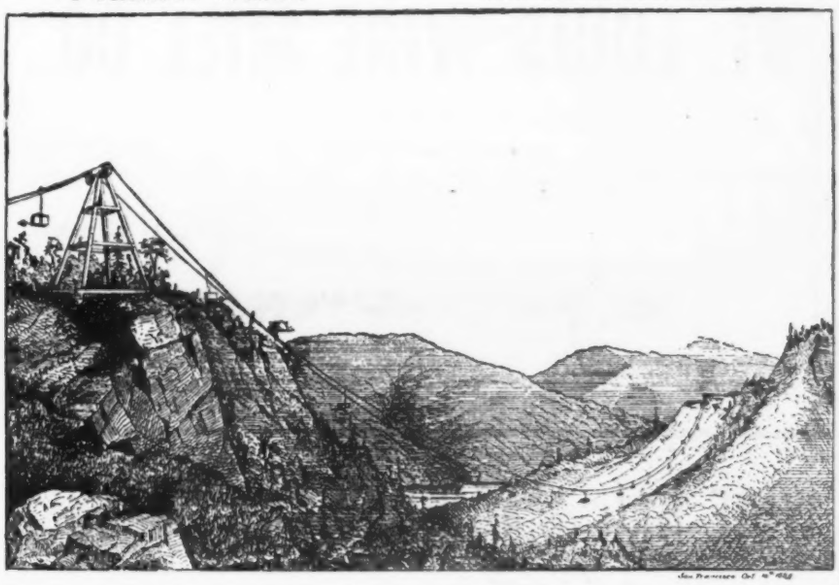
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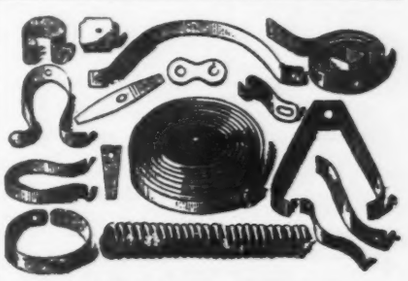
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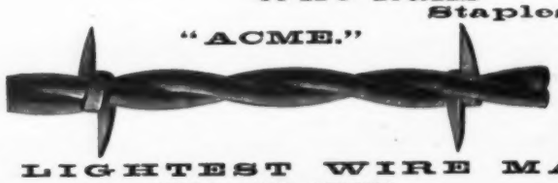
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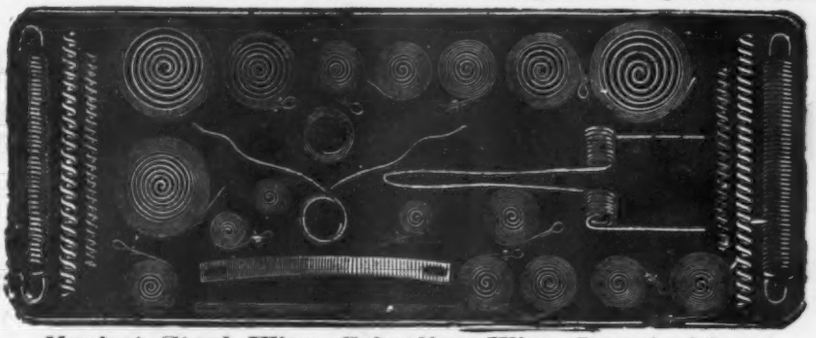
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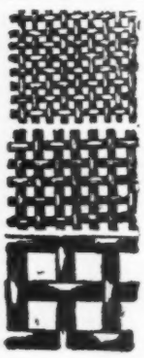
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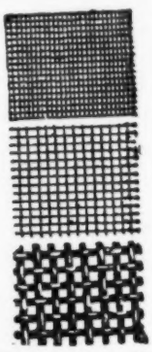
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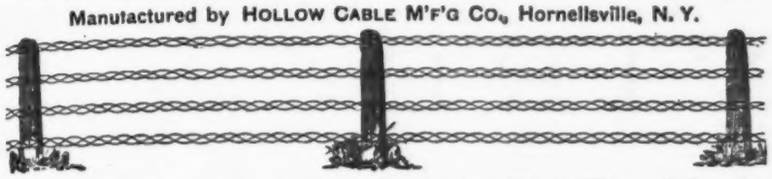
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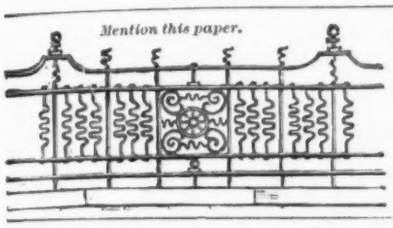
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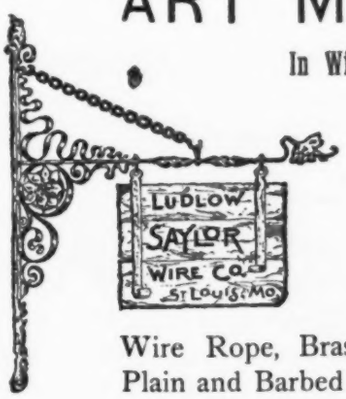
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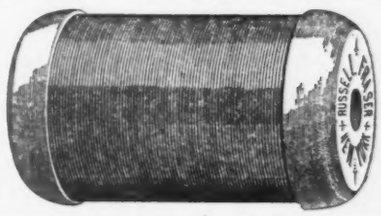
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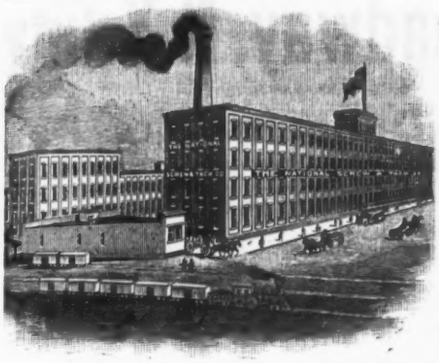
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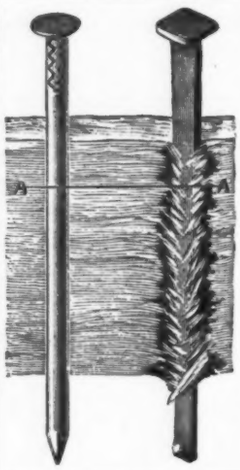
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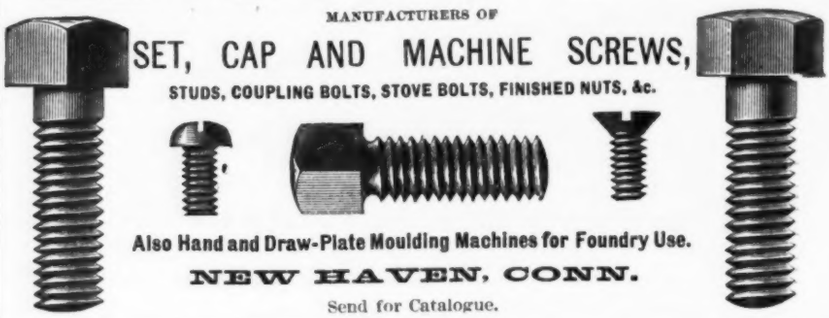
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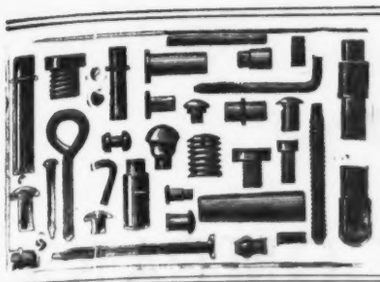
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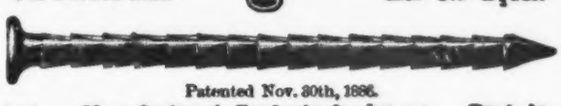
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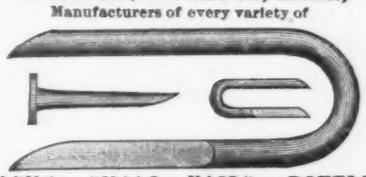
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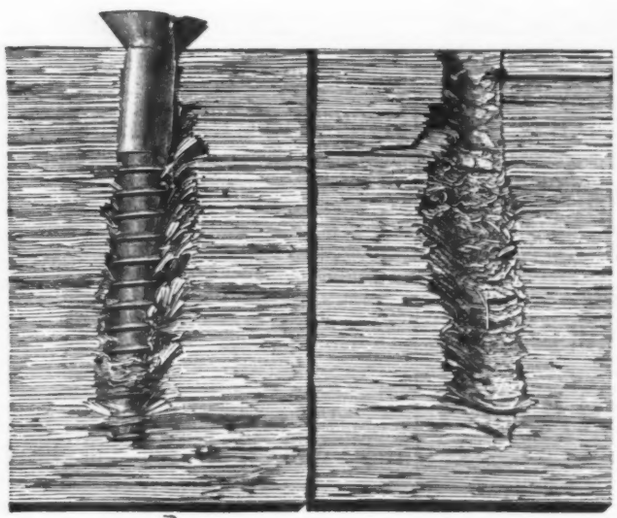
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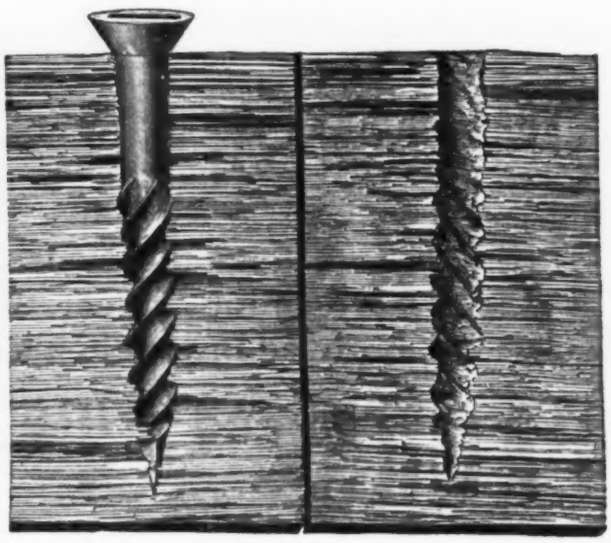
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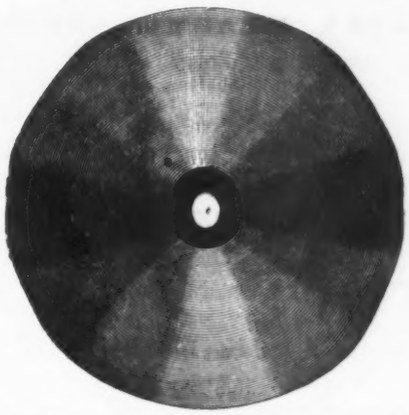
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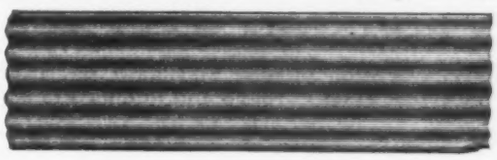
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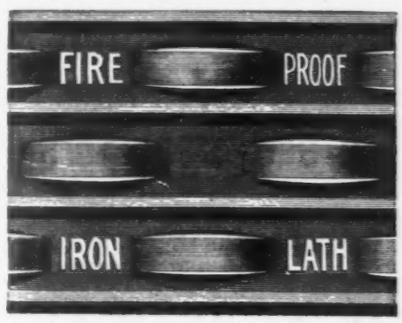
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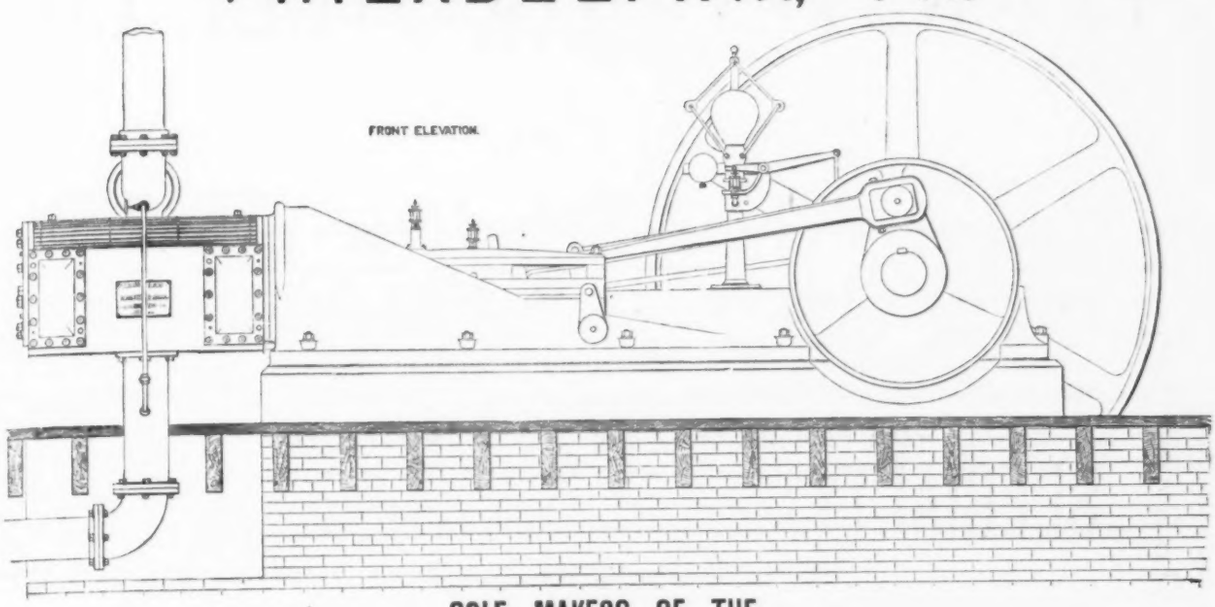
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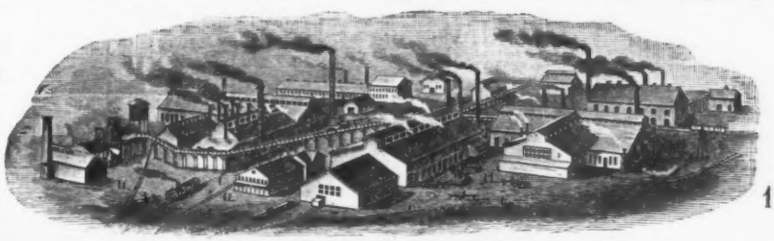
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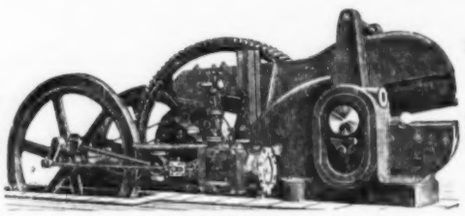
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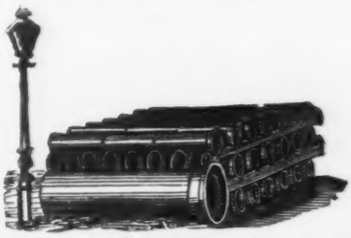
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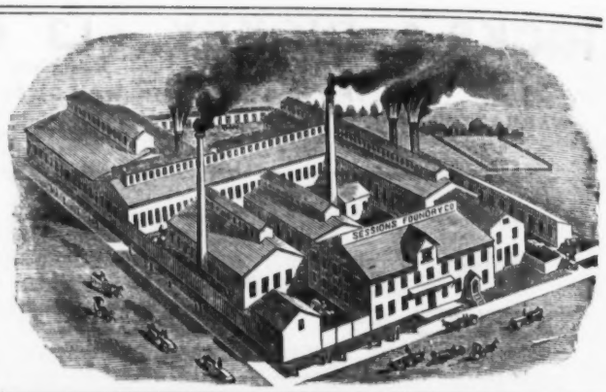
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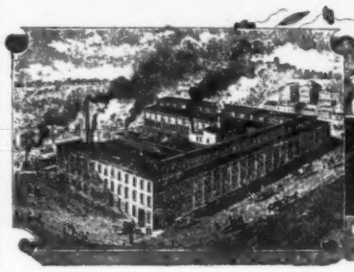
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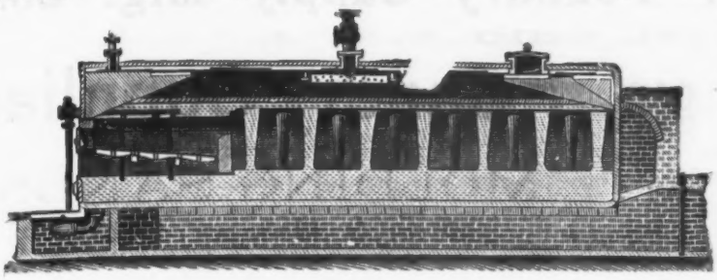


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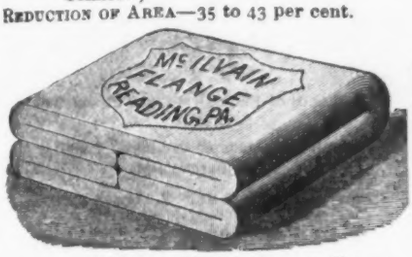
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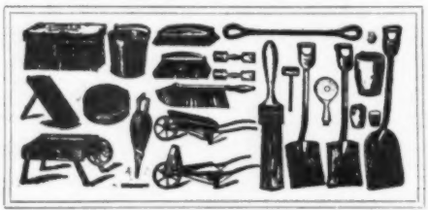
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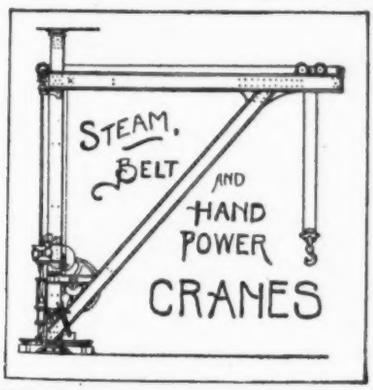
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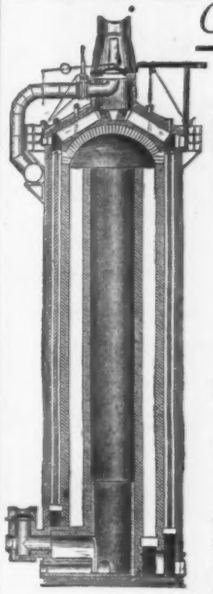
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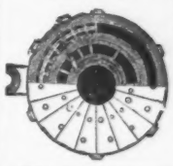
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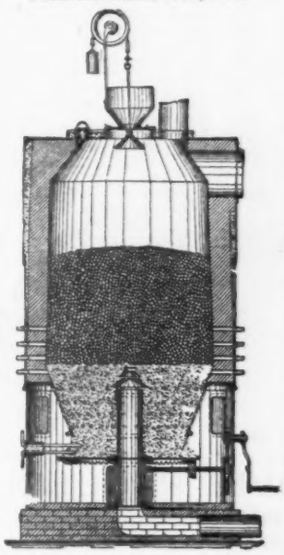


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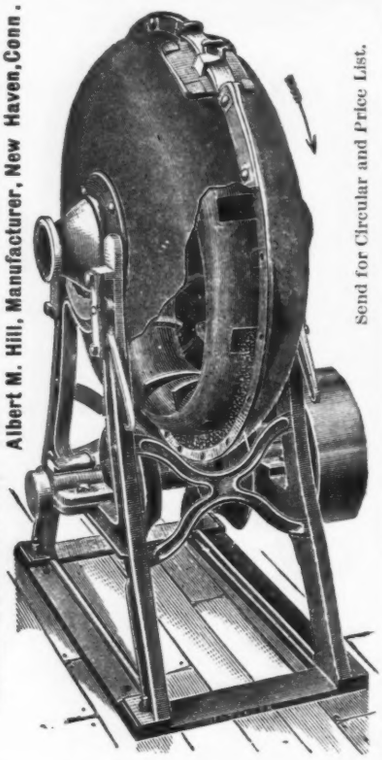
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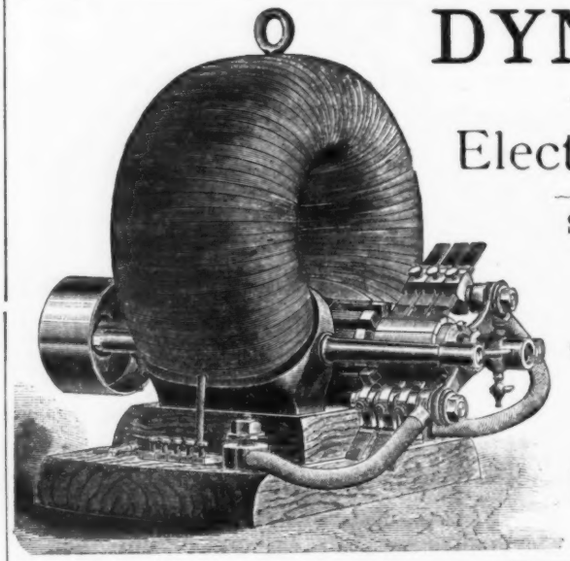
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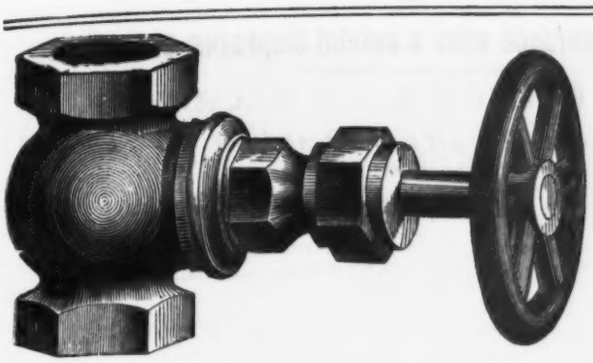
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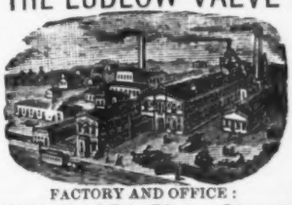
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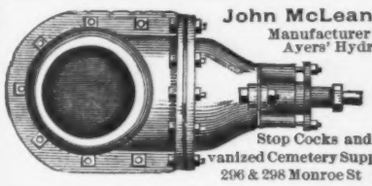
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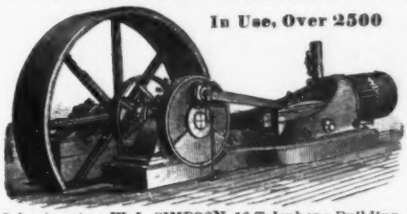
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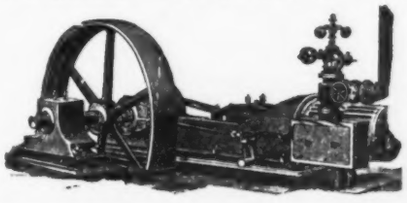


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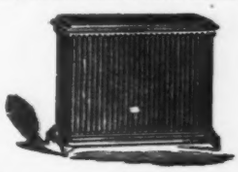
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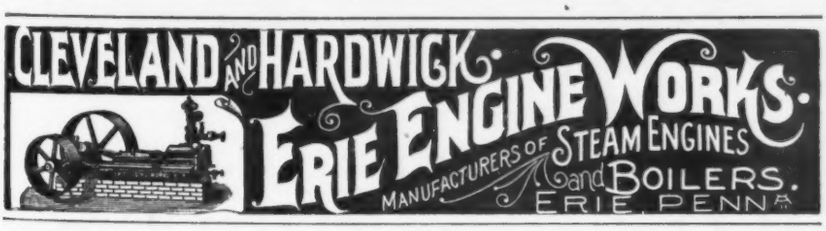
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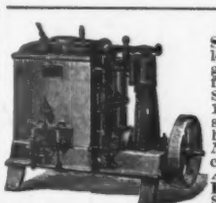
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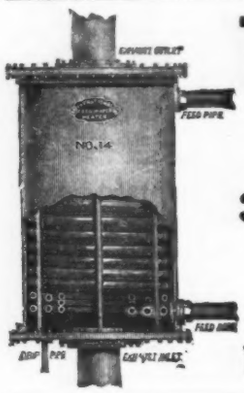
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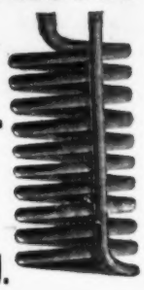
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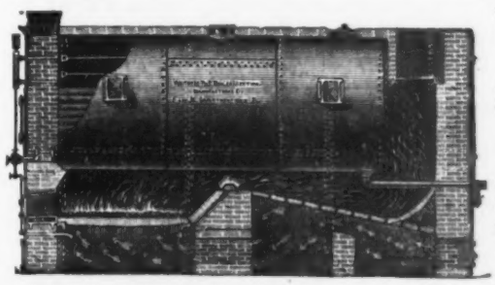
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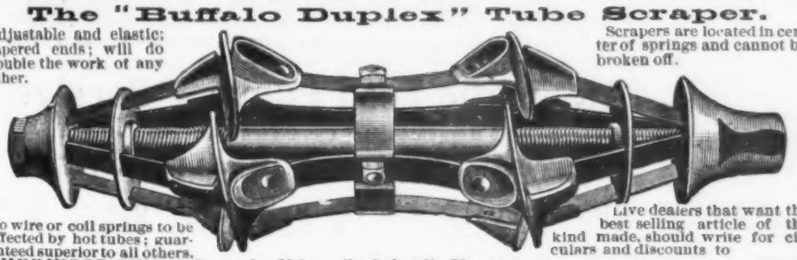
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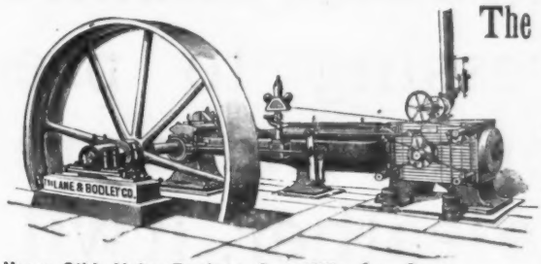
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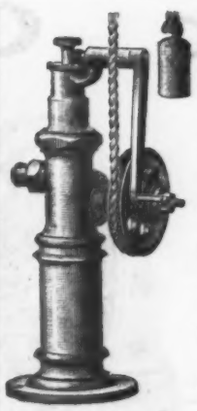
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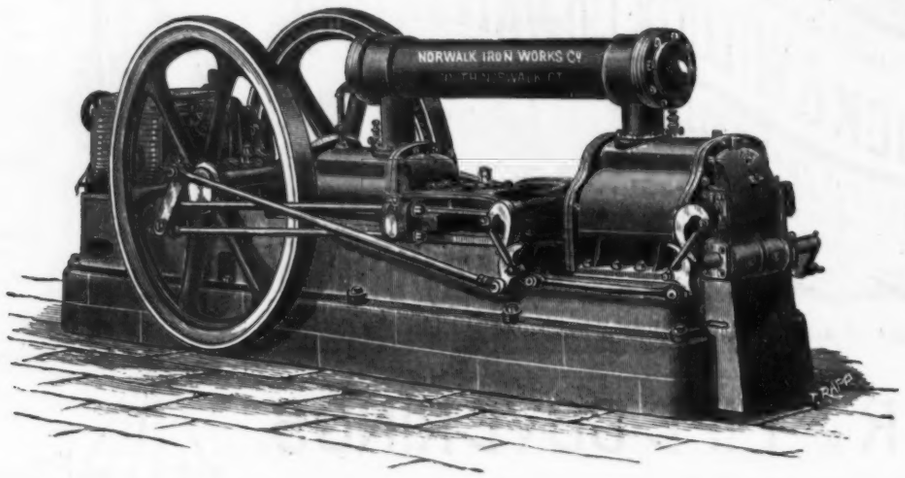
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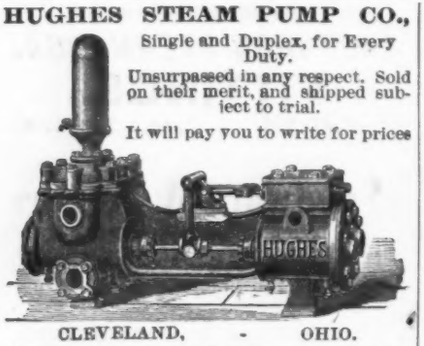
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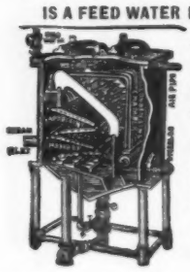
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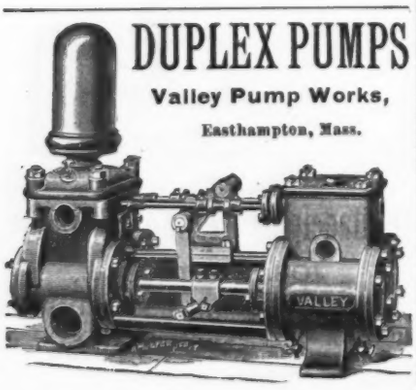
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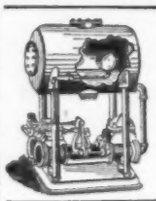
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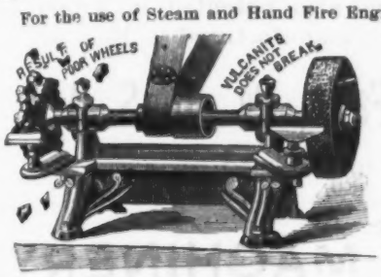
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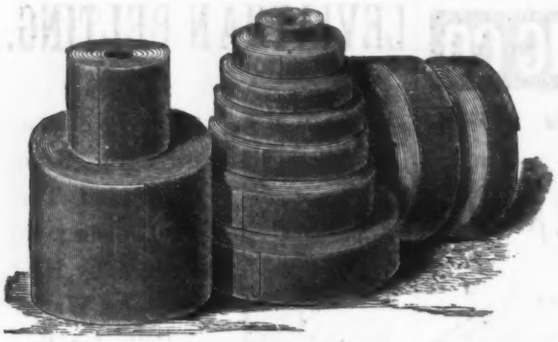


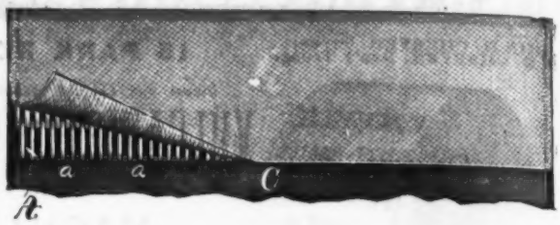
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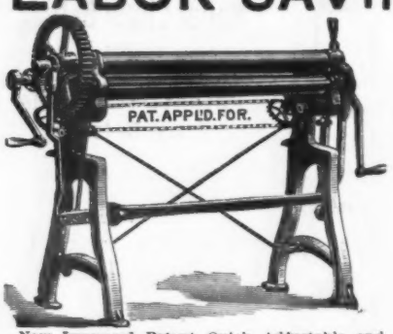
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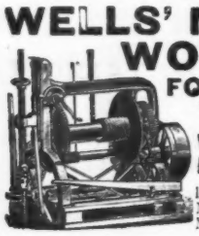
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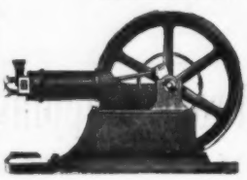


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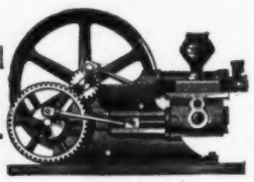


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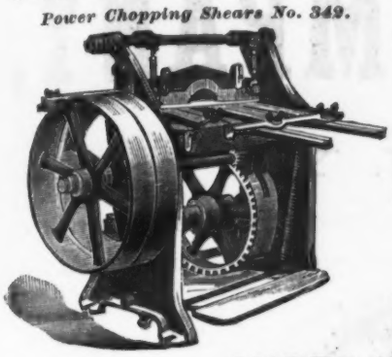
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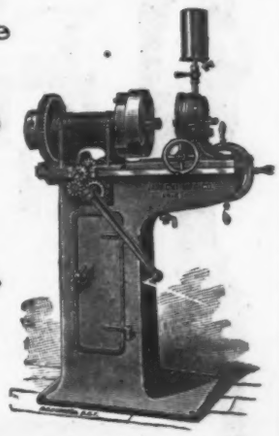
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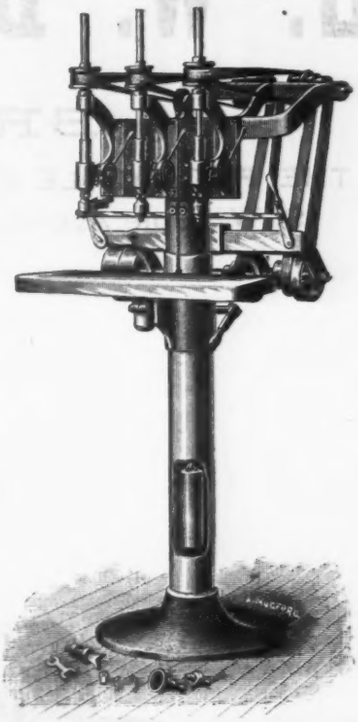
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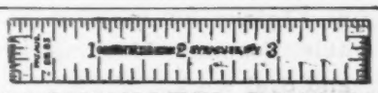


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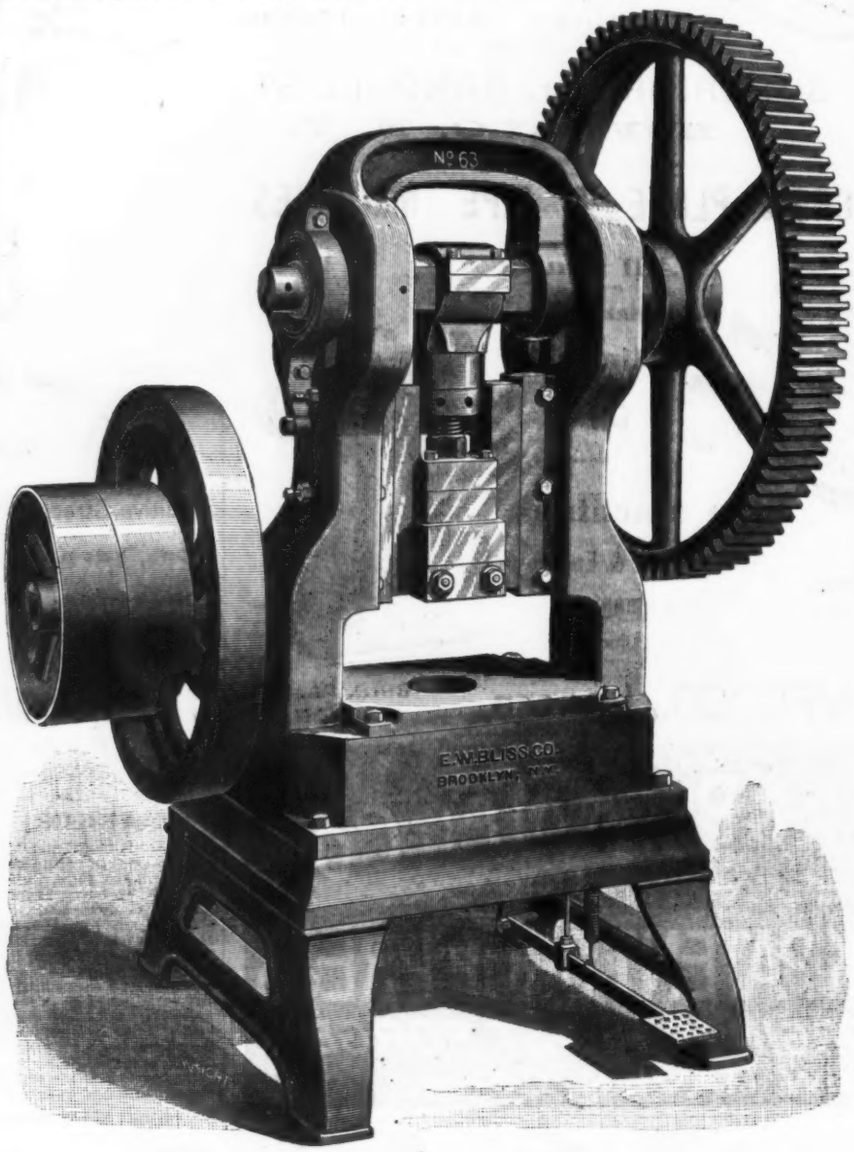
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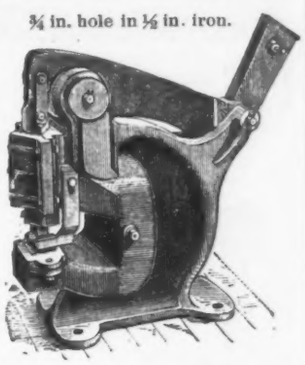
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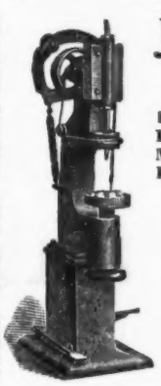
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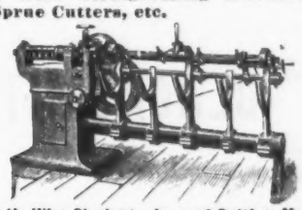


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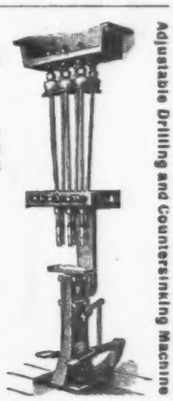
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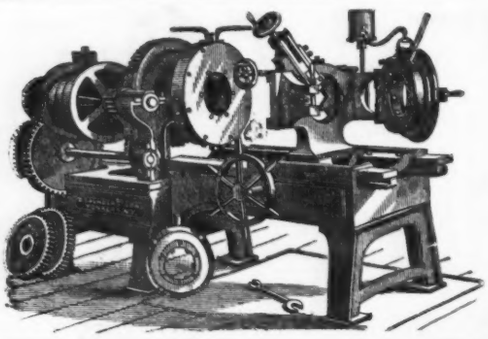


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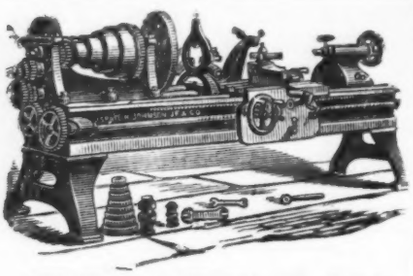
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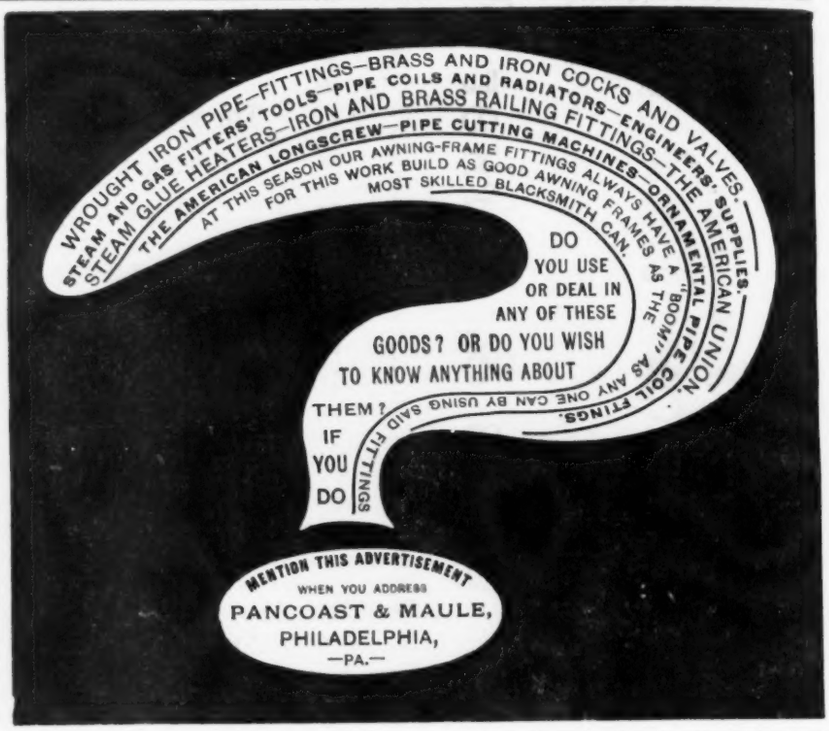


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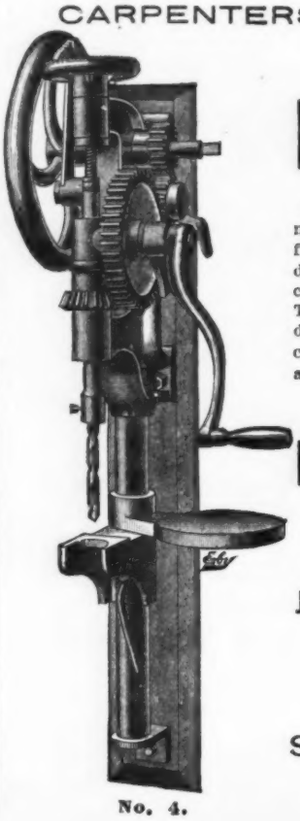
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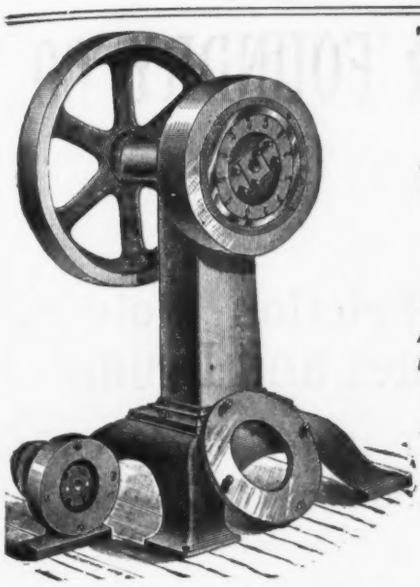
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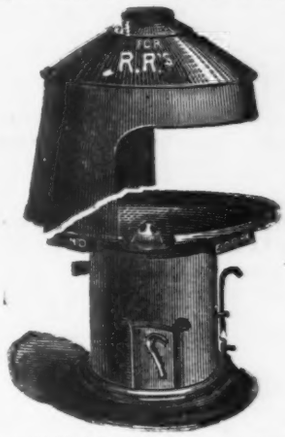
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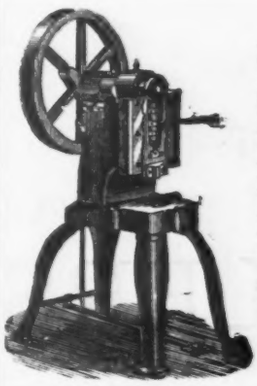
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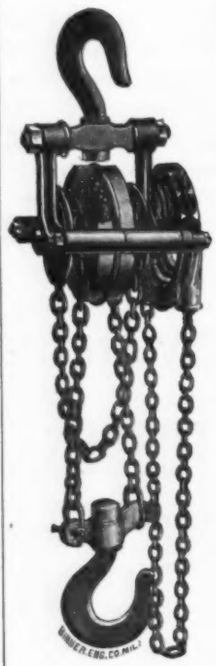


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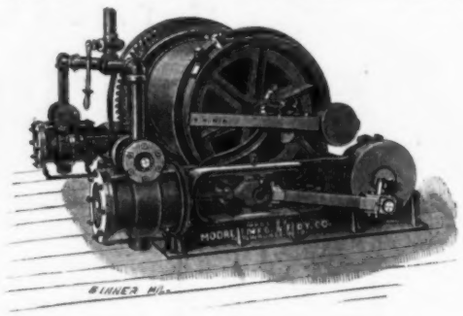
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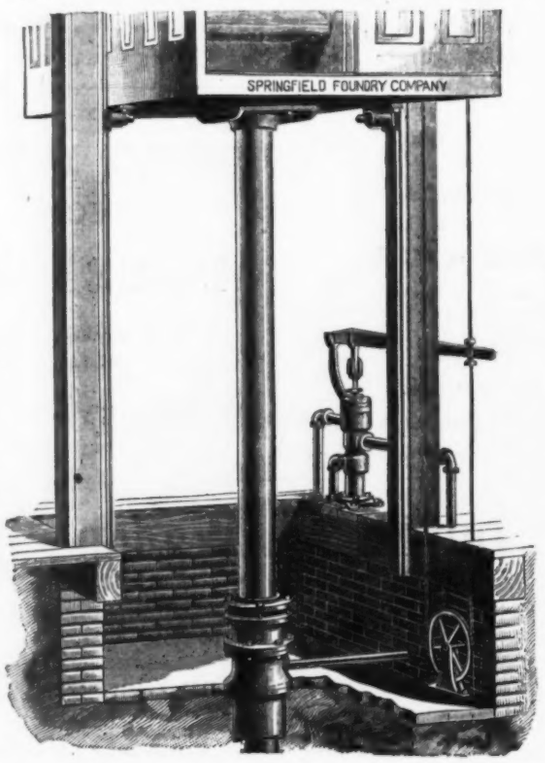


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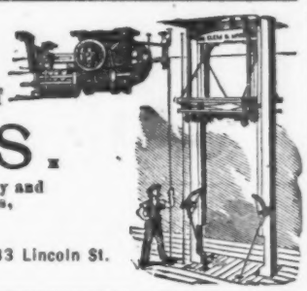
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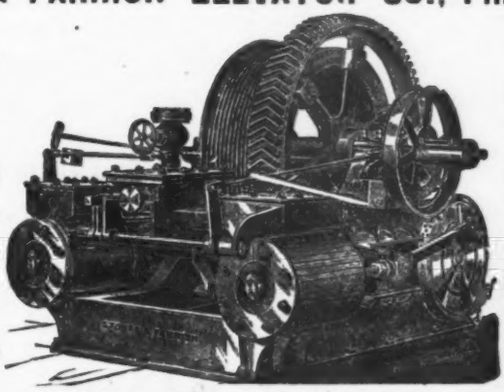
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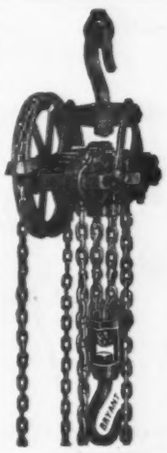
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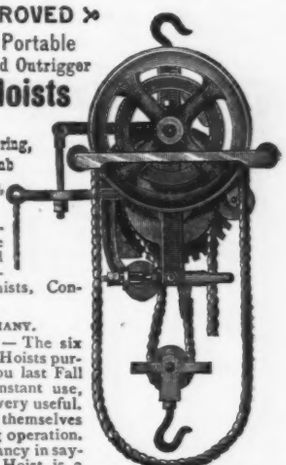
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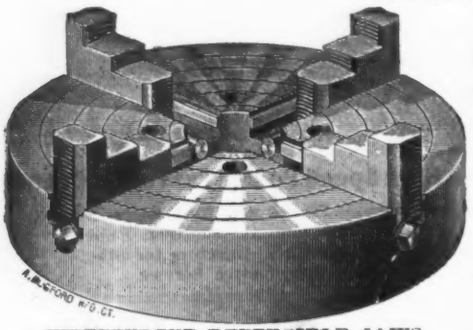
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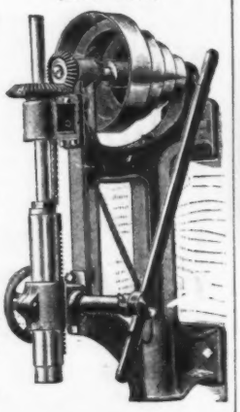


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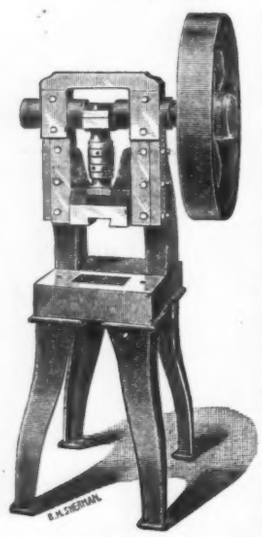
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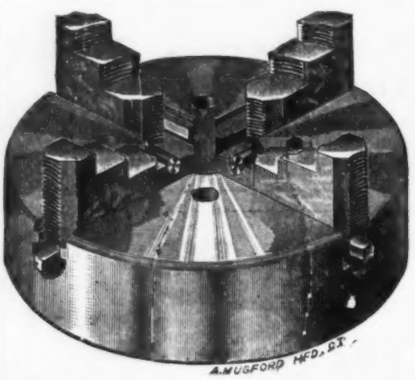
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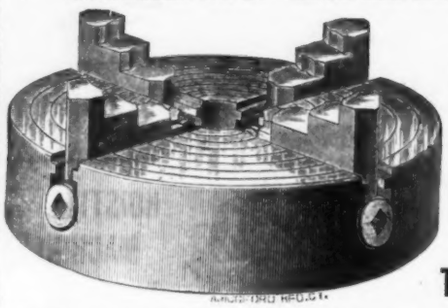
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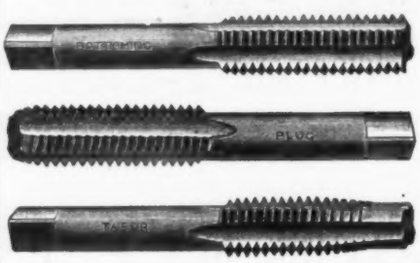
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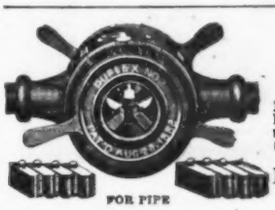
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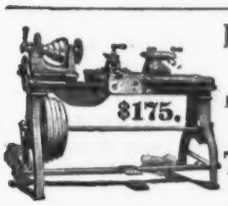
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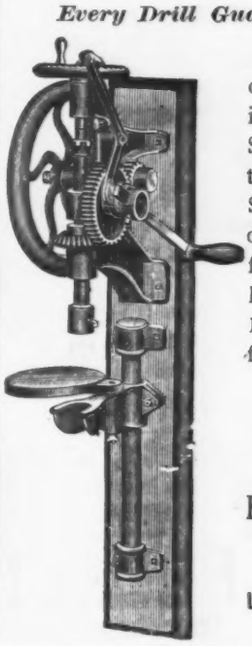
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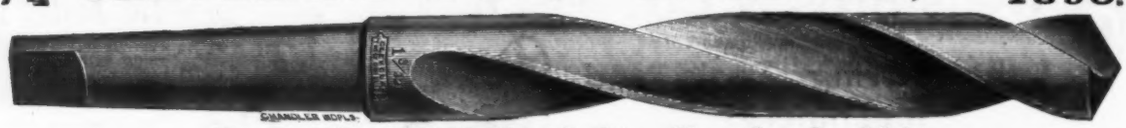
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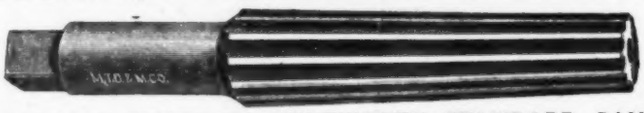
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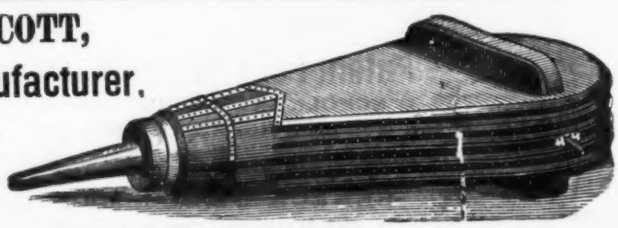
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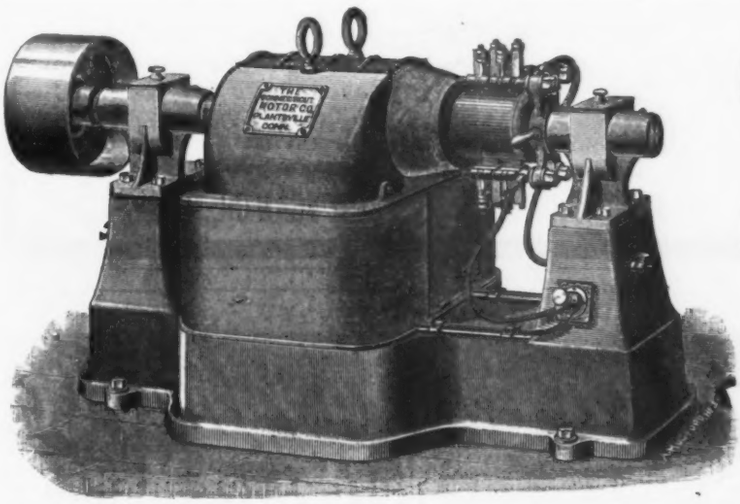
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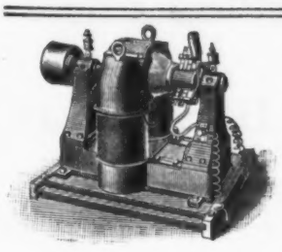
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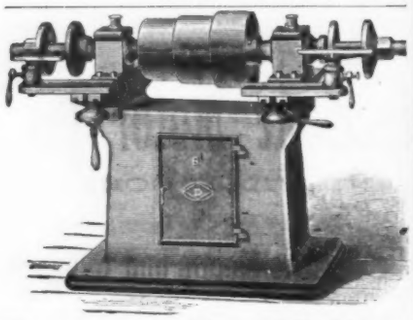
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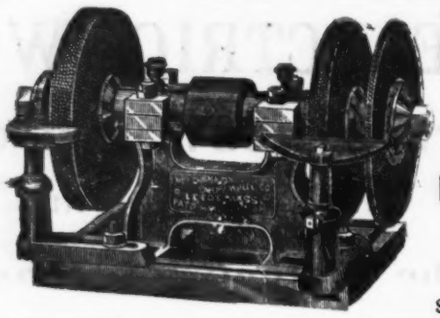
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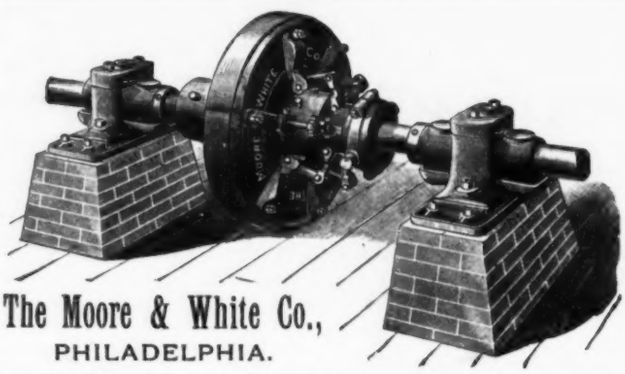
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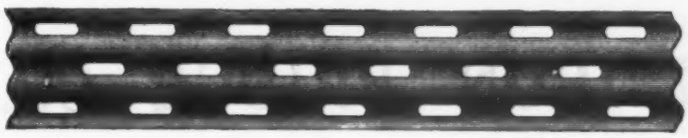
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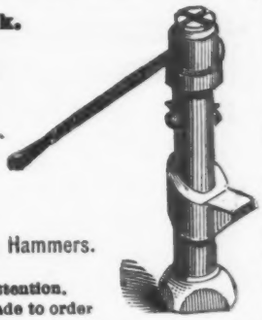
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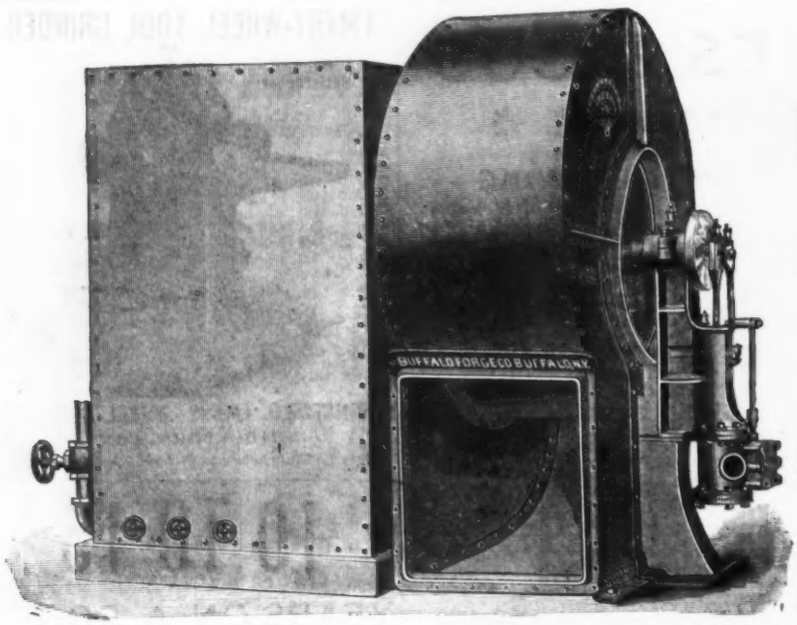
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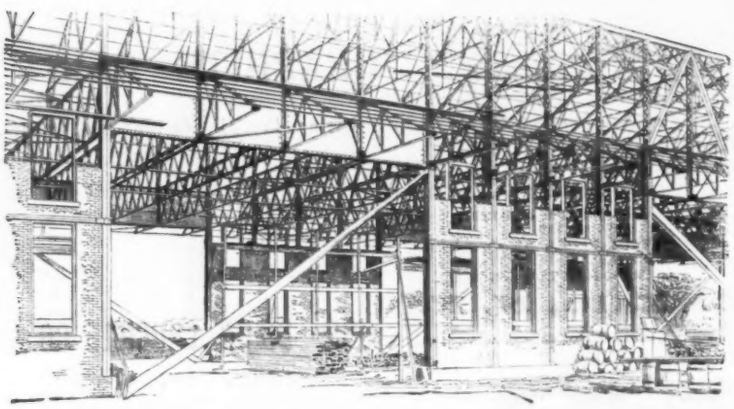
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The illustration herewith was taken direct from a photograph taken during the construction of the iron Ship Shed built by us for the Newport News Shipbuilding & Dry Dock Co., at Newport News, Va. The frame of the building is made of iron and between the outside posts a light 8-inch brick wall is carried up to protect the contents of the building from the weather. The plan particularly commends itself where foundations are expensive, as the walls are supported by girders underneath with piers from 10 to 40 feet apart.

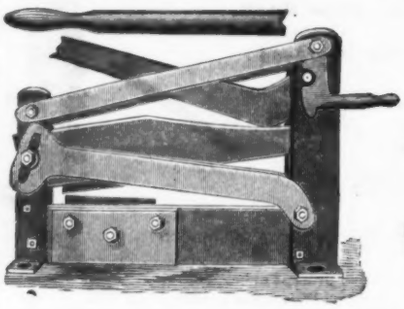
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For inspection of the estate apply to the agent in charge, Mr. R. J. Gibbs, on the premises at 133 Sheldon street, Hartford, Conn., but address all correspondence to the undersigned.

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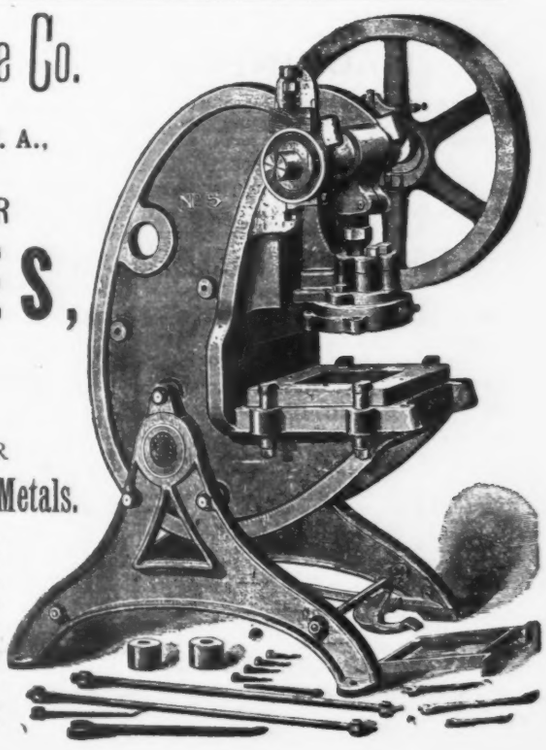
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20 in., 25 in., 28 in., 32 in. and 40 in. Standard Drills.
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1 16 ft. bed 60-in. Engine Lathe.
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One each 6 & 8 H.-P. Portable Engine on wheels.
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Engines, Boilers, Rolls and the entire machinery of the plant, all of the latest and best construction, separately or together. Send for catalogue.

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4 24-in. Drill Presses.
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18 in. x 24 Atlas Engine. New.
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7 H.-P. Gas Engine.
30 Vertical Engines. All sizes.
25 Horizontal Engines. All sizes.
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1 3 H.-P. Shapley Boiler.
1 40 H.-P. Locomotive Boiler.
1 Crank fly-wheel Pump, 5-in. suction.
1 Boiler makers' Punch, 15¼-in. throat, ¾-in. hole in ¾-in. Iron.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "
1 18 in., 22 in., 26 in., 30 in., 40 in. Water Motors.

LOVECROVE & CO.,

Third and Quarry Sts., Philadelphia, Pa.

FOR SALE.

One 16 x 42 Babcock & Wilcox Engine.
One 14 x 42 Wheelock Engine.
One 14 x 42 Greene Engine.
One 10 x 30 " "
One 10 x 24 Exeter Engine.
Three 150 H.-P. Corliss Upright Tubular Boilers
One 50 H.-P. Corliss Centennial Upright Tubular Boiler.
Three 80 H.-P. Horizontal Tubular Boilers.
Steam and Power Pumps of all sizes.

D. B. CRUICKSHANK, 243 Dyer St., Providence, R. I.

NOTICE OUR OFFER.

We have for sale a lot of New Iron Planers, to plane 24 in. wide, 24 in. high, 6 ft. long; weight 4500 lbs.

Guaranteed to be well made.

Net cash price each, $400.

Send for photograph.

Hill, Clarke & Co.,

156 Oliver St., Boston, Mass.

FOR SALE.

1 Berryman Heater, 6 ft. x 20 in. Very good.
3 Garvin Millers, different sizes. Very good.
1 B. & S. Automatic Gear Cutter, for sewing machines, etc. Nearly new.
1 B. & S. Small Screw Machine. Nearly new.
1 2000-Gallon Eddy Plating Dynamo. Used one month.
1 1000-Gallon Weston Plating Dynamo. Very good.
1 Defiance Pulley Balancing Machine. Good as new.
1 Adt. Wire Straightner with cut-off. Good as new.
1 Foundry Crane, good for 5 to 10 tons. Good order.
1 McKenzie No. 3 Pressure Blower. Good order.
2 No. 4 Root Pressure Blower. Good order.
1 No. 9 Sturtevant Pressure Blower. Good order.
3 Exhaust Fans. Good order.
2 Ventilation Fans, 48 and 60 inches. Good order.
3 Bolt Cutters, 1 Bolt Header, 2 Tappers. Good order.
1 80 H.-P. Westinghouse Engine. Used one year.
1 Screw Wheel Press, 40 to 60 tons. Good order.
1 450 Incandescent Dynamo. Nearly new.
1 Each 5 and 10 Light Arc Dynamo.
1 Duplex Fire Pump. Nearly new.
1 Knowles B. Fire Pump.

W. H. ROBERTSON,
37 South Canal St., Chicago, Ill.

SECOND-HAND ENGINES AND BOILERS.

We have the following on hand for immediate delivery:

1 6 x 12 Horizontal Engine.
1 8 x 10 Horizontal Engine.
1 6 H.-P. Vertical Engine.
1 40 H.-P. Return Tubular Boiler.
1 35 H.-P. Return Tubular Boiler.
1 25 H.-P. Return Tubular Boiler.
1 20 H.-P. Return Tubular Boiler.
2 18 H.-P. Vertical Boilers.
1 24 x 20 x 7 ft. 7 in. New Haven Planer.
3 30 x 30 Cylinder Boilers (these may be used for stacks).

All of the above are in first-class condition and good working order.

Scranton Supply & Machinery Co.,
131 Wyoming Ave., Scranton, Pa.

Second-Hand Machinery Cheap.

1 26 in. x 7 ft. Planer.
1 28 in. x 8 ft. "
1 43 in. x 12 ft. "
1 Heavy Power Punch.
1 18 in. x 8 ft. Engine Lathe.
1 28 in. x 12 ft. " "
1 31 in. x 16 ft. " "
1 36 in. Upright Drill.
1 No. 1 Plain Milling Machine. Brown & Sharpe.
1 No. 3 Universal Milling Machine. Brainard.
1 No. 2 Lincoln Pattern Milling Machine.
1 No. 2 Universal Grinder. Brown & Sharpe.
1 No. 2 Surface Grinder. Brown & Sharpe.
1 Two-Spindle Profiling Machine.
1 36 in. x 12 ft. Chucking Machine. Harrington.
1 Set 10 in. x 6 ft. Power Bending Rolls.
1 Set 12 in. x 10 ft. " " "
1 400 lb. Drop Hammer.
1 600 lb. " "
1 Trip Hammer.
1 12 in. Slotter. Bement.
1 13 in. "
1 12½ in. x 20 in. Armington & Sims Engine.
1 8 H.-P. Portable Engine and Boiler, on wheels.
1 10 H.-P. " " " on skids.

We are agents for Pratt & Whitney Co.'s Machinery.

We have the finest line of Power Presses in the market. Send for catalogue and prices.

Write us of what you want, and send description of machinery that you wish to trade or sell.

The J. A. Mackinnon Machinery Co.,
22 Warren Street, New York.

FOR SALE.

Punching and Shearing Machinery.

Hand and Belt Power.

Boiler Makers' Rolls.

NEW DOTY MFG. CO.,
Janesville, Wisconsin.

FOR SALE.

Machinists' Tools, Lathes, Planers, &c.; been used about two years; now in fine order; remains of bankrupt estate of engine works; to be sold low for prompt cash. For particulars and circulars address

H. B. BEACH & SON, Agents,
Hartford, Conn.

STEEL RAILS,

22 POUNDS TO YARD

20 tons, second-hand, fit to relay, for sale by

DAN'L W. RICHARDS & CO.,
88 to 96 Mangin St., New York.

FOR SALE, CHEAP.

24 8d Nail Machines and Patterns.
One Steam Hammer and Patterns.

FALL RIVER IRON WORKS CO.,
Fall River, Mass.

For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address

Wm. F. Jarvis & Co.,
Detroit, Mich.

TWO SWITCHING LOCOMOTIVES

FOR SALE.

Two 30-Ton Rogers Saddle Tank Switchers in excellent condition, 14 x 22 cylinders, four drivers; will work on any curve; immediate delivery. Address

J. S. BERKERY,
Detroit, Mich.

Iron Tools, Second-Hand.

1 13 in. x 5 ft. Engine Lathe.
1 23 in. x 12 ft. " " Chain Feed.
1 24 in. x 14 ft. " " Screw "
1 26 in. x 10 ft. " " New Haven.
1 36 in. x 22½ ft. " " Triple Geared.
1 44 in. x 21 ft. " " " "
2 64 in. x 24 ft. " " " "
1 30 in. x 30 in. x 10 ft. Iron Planer. Putnam.
1 36 in. x 36 in. x 13 ft. " " Sellers.
1 36 in. x 36 in. x 22 ft. " " " "
1 36 in. x 36 in. x 18 ft. " " New York Steam Engine Co.
1 8-in. Shaper. Boynton & Plummer.
1 12-in. " Gould & Eberhardt.
1 15-in. " Hendey, Improved Vise.
1 9-in. Slotter. Niles.
1 No. 2 Bement Cotter & Key Seat Cutter.
1 1-in. Double Bolt Cutter.
1 Miller's Hand Drill.
1 No. ½ Root Blower.
1 250-lb. Steam Hammer. Morgan.
1 3800-lb. " " Bement.
1 Nichols Power Riveting Machine.
1 Wilber Power Flanging Machine.
3 3-in. Waters Governors.
1 10 x 10 Double Reversing Engine.
1 6-in. Centrifugal Pump.
Also second-hand Punches, Shears, Blowers, etc.
1 42 in. Car Wheel Borer. Niles make.

Wood Tools, Second-Hand.

1 Large Car Mortiser and Borer.
1 " Size Car Tenoner.
1 Small " " "
1 Universal Horizontal Car Borer.
1 8-in Flooring Machine.
1 36-in. Circular Rip Saw.
3 Foot Mortisers.
1 Column Ripping Saw.
1 No. 5 Unstrained Scroll Saw.
1 Tanite Saw Gummer.
Lot Shafting, Pulleys, Hangers, etc.

Also a complete line of new Iron and Wood Working Tools for immediate delivery. Write for quotations: also for small tool catalogue. Mention this paper.

U. BAIRD MACHINERY CO.,
74 and 75 Water Street; 92 and 94 First Avenue, Pittsburgh, Pa.

FOR SALE. SECOND HAND.

Berryman Heater, 10 in. exhaust.
Baragwanath Heater, 7 in., 8 in., 12 in. exhaust.
12 in. Judson Governor.
Two 18 x 28 Watertown Auto. Engines.
4 in. Pipe Cutting and Threading Machine.
Incandescent Dynamos, 50, 75, 100, 250 and 400 lights each.
High Speed Automatic Engines, 30 to 100 H.-P.
Automatic Engines, 20 to 600 H.-P.
Surface and Jet Condensers.
Steam Pumps of all kinds and size.
Whittier & Otis Elevator Engines.
Leather Belting up to 30 in. wide.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

One Boiler, good as new, 48 in. diam., 14 ft. long, double riveted, 25 4-in. tubes; Wetherell & Co. make; fronts, bars and all trimmings complete.
Two 75 H.-P. Boilers, all complete; I. P. Morris & Co. make; best flange charcoal iron, double riveted; blow offs, 30, 36 in. diam.
Smoke Stacks, Iron Tanks, Engines and Boilers, all sizes. Nearly everything in the Machinery line. Scrap Iron and New and Old Metals.

BUSSENIUS & CUNLIFFE,
1142 Washington Ave., - - Philadelphia.

FOR SALE.

10 Wire Nail Machines, only been run a short time; will sell either all or part; also Forge, Tumbler, Sturtevant Exhaust, &c.

Address
"TUMBLER,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WIRE MILL FOR SALE.

To close the estate of **THE NEWHAVEN WIRE CO.**, its Wire Drawing Plant is offered for sale; the mill is now running at a profit; there are about four acres of land, a good wharf, substantial brick buildings, and machinery all in good order. For further information, address

SAMUEL A. GALPIN,
Receiver, New Haven, Conn.

A NEW IDEA!

Choice Second-Hand Boilers, Engines and Machinery at First Hands.

Also odd lots new goods at greatly reduced prices. *Send for my list.*

THOMAS P. CONARD,
206 Walnut Place, Philadelphia.

FOR SALE CHEAP.

One 7-ft. Lathe, has been used for turning locomotive wheels.
One 6 x 8 Hoisting Engine and Boiler, nearly new.
One 48-in. Chucking Lathe.
Two Cheap Drill Presses.

ALFRED BOX & CO.,
Front, Poplar and Canal Sts., Philadelphia, Pa.

Bolt and Nut Machinery

Second-Hand Tools for Sale Cheap.

1 in. Acme Bolt Cutter (old style frame.)
No. 4½ Schlenkler Bolt Cutter (old style) Cuts to 1¼ in.
No. 5 Schlenkler Bolt Cutter (new style). Cuts to 2 in.
Double Schlenkler Bolt Cutter (new style). Cuts to ⅞ in.
Double Lewis, Oliver & Phillips Bolt Cutter. Cuts to 1½ in.
National Double Rapid Bolt Cutter (old style frame).
3 Spindle Belt Nut Tapper.
12 in. Crank Planer.
Durfee & Doe Key Seating Machine.
Seller's Bolt Cutter. Cuts to 1½ in.
Seller's Bolt Cutter. Cuts to 2 in.
Seller's Bolt Cutter (with Acme head). Cuts to 1 in.
Bolt Cutter (with National head). Cuts to 1½ in.
No. 2 National Washer Machine.
No. 2 Pittsburgh Nut Machine. For ¼ in. to ¾ in. nuts.
Chapin Bolt Header.

THE NATIONAL MACHINERY CO.,

Tiffin, Ohio.

MACHINE TOOLS FOR PROMPT DELIVERY.

Hendey Engine Lathes, 14x8 ft. 18x6-8-10 ft.
Prentice " " 14x6 ft., 16x6-8 ft., 18x8 ft.
Fitchburg " " 14x6 ft., 16x6-8 ft., 18x8 ft.
Wright " " 16x6 ft., 20x10 ft., 24x12 ft.
McMahon " " 16x8 ft., 20x12 ft.
Lathe & Morse Engine Lathe, 20x10 ft., 27x12 ft.
Fay & Scott " " 28x16 ft.
Planers, 20x4 ft., 22x5 ft., 24x6 ft., 30x8 ft.
Prentice Drills, 20-21-25 28-32 in. swing.
Blaisdell " 25 in., complete.
Currier & Snyder 28 in. Drill, complete.
Shapers, crank motion, 15-16-24 in. stroke.
Upright Boring and Turning Mill, 39 in. swing.
Universal Milling Machine, No. 2, Garvin.
Cabinet Turret Lathe No. 2, Am. Tool Co.
Brass Lathes—Turret and Square Arbors.
Large stock of *second hand tools*—all kinds—that we have replaced with new ones. *Prices low.* Send for complete list.

J. J. McCABE,

Successor to E. P. BULLARD'S New York Machinery Warerooms,
68 Cortlandt St., New York.

FOR SALE.

The following Floor Plates:
121 Floor Plates, 2 ft. x 4 ft.
2 " " 2 ft. 9 in. x 5 ft. 10 in.
1 " " 2 ft. 10 in. x 5 ft.
1 " " 4 ft. 3 in. x 6 ft. 8 inches.
1 " " 3 ft. 6 in. x 3 ft 6 in.
1 " " 4 ft. 2 in. x 8 ft. 6 in.
10 " " 2 ft. x 2 ft.
1 " " 2 ft. 10 in. x 3 ft.
8 " " 3 ft. x 3 ft.
Price 1c. per lb. F.O.B. Boonton, N. J. Address
OFFICE BOONTON IRON WORKS, 68 Wall St., N. Y.

PLANERS FOR SALE.

1 Planer, 36 in. x 36 in. x 10 ft., built by Bement.
1 Planer, 33 in. x 33 in. x 9 ft., " " F. & A. Betts.
1 Planer, 30 in. x 30 in. x 6 ft., " " Scott Bros.
1 Planer, 24 in. x 24 in. x 4 ft., " " " "
All of these Tools are of the most modern and durable type, having quick return and the necessary feeds. They are comparatively new and will be sold low for cash.

L. F. SEYFERT'S SONS,
437-441 N. 3d St., Philadelphia, Pa.

FOR SALE.

RAILS.

100 Tons Iron Rails, 35 lbs. to the yard Fit to relay. Address

JOSEPH HAYS & CO.,
180 Scranton Ave., Cleveland, O.

For Sale in One Lot.

ALL IN GOOD CONDITION.

50 H.-P. Slide Valve Corliss Frame Engine, Judson governor, 8 ft. wheel, 20 in. face.
65 H.-P. Return Tubular Boiler, 14½ ft. x 54 in., 60 3 in. tubes.
1 Smith & Vale Duplex Brass Lined Pump, 2½ x 4¾ x 4½.
1 7 ft. x 6 ft. Wooden Tank.
1 7 ft. x 18 in. face x 4 in bore Driving Pulley.
1 16 in. Double Belt about 45 feet long, piping connections and lubricators complete. This lot cheap.
Several Steam Pumps.

MITCHELL & MEIGS,

136 and 138 So. 4th St., - Philadelphia.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.
THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

ROD MILL

Wanted by a party contemplating erecting a Wire Rod Mill in the West to roll 40 tons wire rods single turn, with all necessary appurtenances, including power. Address correspondence, with estimates and proposition, to

C. R. PARSONS,
140 Nassau Street, Room 86, New York.

FOR SALE.

Whole or half interest in Foundry and Machine Shop in the best town in the West. Everything new and running at full capacity on paying business. Good reasons given for selling.

Address
BOX 43, Pittsburg, Kansas.

FOR SALE.

In West Chelmsford, Mass., all the Real Estate and Machinery formerly owned by the Hiscox File Co.; the real estate consisting of about 7 acres of land together with the buildings and water power, and the machinery, being such as was used by them in the manufacture of files, machine knives, sword blades and edge tools. There is also on the premises a good 75 horse-power Harris-Corliss engine and good boiler, also a large amount of shafting, belting and supplies. This property is situated about five miles from Lowell, and is very easy of access by railway, with excellent facilities. The entire property will be sold very cheap, either as a whole or in part, and will afford some party an excellent chance to enter into this business. For terms, &c., inquire of

J. W. BENNETT, Lowell, Mass., or
F. G. SARGENT, Graniteville, Mass.

FOR SALE.

27 Gross Tons Steel Rails, 4 feet long and over.

SIMON & BLONDER BROS.,

OFFICE and Yard: 158 and 160 WEST CHICAGO AVENUE,

CHICAGO, - ILLINOIS.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address,
"MISSOURI,"
office of *The Iron Age*, 230 S. 4th St., Philadelphia.

To Those Looking

—FOR—

Manufacturing Sites

IN THE SOUTH.

The most desirable locations in the South for manufacturing wagons, stoves, agricultural implements, furniture, or for foundries, machine shops, rolling mills, muck bar mills, nail works, glass works, cotton or woolen mills and tanneries, are to be found in Virginia along the line of the Norfolk & Western Railroad from Norfolk to Bristol, and upon its branch lines. Hard wood of every variety; pig-iron from the furnaces at Lynchburg (2), Roanoke (2 in operation and 1 now under construction), Pulaski (1), Ivanhoe (1), Radford (1, to be built in 1890), Salem, Graham, Max Meadows and Bristol (1 at each point now under construction), bar iron from the rolling mills at Roanoke, Lynchburg and Richlands (1 to be built in 1890); coke and semi-bituminous coal from the Pocahontas Flat Top field; superior gas coals from the mines on the Clinch Valley extension; glass sand from Tazewell County; cotton from the markets of the Southern States, and wool from all the Western and Southwestern States and Territories, at advantageous freight rates. Favorable freight rates made upon raw materials to all factories established upon its line, as well as to points in the United States and Territories upon the manufactured articles.

Those seeking new fields for manufacturing establishments should not fail to investigate the wonderful development of iron, coal and coke industries that has been made within the past five years along the line of the Norfolk & Western Railroad, and the advantages offered by the State of Virginia in the supply of cheap raw materials, by the Norfolk & Western Railroad in the matter of freight facilities and rates upon raw materials, and for reaching home, far distant and foreign markets, and by the cities and towns along its line in the way of advantageous sites at moderate cost. Many of the cities and towns exempt manufacturing establishments from taxation for a series of years.

For further information as to freight rates and sources of supply of raw materials, apply to A. POPE, General Freight Agent, Roanoke, Va., or to

CHAS. G. EDDY,

Vice-President, Roanoke, Va

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot. unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.

WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

PORTLAND, OREGON.

To Merchants, Bankers, and Manufacturers.

Your attention is invited to the large opportunities for Jobbing of every kind, Banking and Manufacturing in the City of Portland. Portland is the second city and coming metropolis of the Pacific Coast, as New York City denominates the Atlantic Coast.

Without trans-Atlantic railroads till 1883, she already has secured more trans-continental roads than any other city on the Pacific coast. She is nearer Chicago and New York and reached quicker by rail than any other city on the Pacific coast. (See maps and railroad time-tables.)

Portland is situated at the mouth of more miles of river navigation than any city, except New Orleans, in the United States. Over 1000 miles of the Columbia and Willamette rivers and tributaries are navigated by river steamers contributing to Portland's Commerce. Portland has 250,000 square miles of area distinctively her own trading territory, in which are now being operated 3409 miles of railway with 1000 miles more to be added before the end of 1891.

Portland has exclusive lines of vessels trading coastwise to San Francisco, 772 miles south, to Puget Sound points and British Columbia points, and to Alaska, 1500 miles north.

She also has exclusive lines of vessels plying between Portland and New York City, between Portland and Japan, and between Portland and China. In addition, Portland loads annually at her wharves over 100 seagoing vessels coming in on special charters after cargoes of salmon, flour, wheat and ship timbers, going to nearly every well-known port in the world.

The tributary territory of Portland is about the size of New England, New York, Pennsylvania and Ohio combined. In 1880 it had scarcely 225,000 inhabitants. To day there are over 1,000,000 and increasing 1000 daily, and must steadily grow to 10,000,000 or more. The immigrants are chiefly farmers.

Portland controls the trade of ten times the fertile acreage tributary to any other Pacific coast point

AND MORE THAN ALL OTHER PACIFIC COAST POINTS COMBINED.

Portland has Unlimited Water Power for Manufactories. Vast Water Power at the Entrance to Deep Sea Navigation is Rare, and Exceedingly Valuable to Portland's Mfg. Development.

Portland has electric, cable and horse-car lines, charming parks and boulevard drives, hotels costing as high as $900,000, churches costing as high as $150,000, a grand system of public and private schools, including a high school costing $127,000, several colleges, and an air of refinement and culture which makes people from the larger Eastern cities feel perfectly at home.

Portland's Leading Commercial Interests are Exporting, Banking and Wholesaling, with Manufacturing Rapidly Developing

The Salmon fisheries of the Columbia river produce $2,000,000 to $3,000,000 annually. The export trade has multiplied several fold in recent years, as the country develops. The banking capital has grown to fourteen banks controlling six millions of capital. Our wholesale trade has grown from $75,000,000 in 1888 to $115,000,000 in 1889, and is yet in its infancy and growing at the rate of over 25 per cent. annually. Our manufacturing output in woolen goods, lumber, boots and shoes, paper, iron and many other lines aggregated over $20,000,000.00 in 1889, and is not yet fairly begun.

All these interests are thriving and yet there is room for enlargement on every hand in a region richer in agricultural resources than Illinois and sister States, in iron and coal similar to Pennsylvania and Alabama, greater in lumber than Minnesota and Maine and unrivalled in the more precious metals.

There has never been a failure of a bank or wholesale house in Portland.

The recent enormous development of the trade of Portland has outgrown all her facilities and her capital. Therefore the Oregon Immigration Board urges and invites correspondence and personal visits from people in all lines of Wholesale Trade, Banking and Manufacturing.

$20,000,000.00 additional capital would find immediate employment, producing profits very large to people with Eastern ideas, yet with unqualified safety. While in several lines we need houses commanding $500,000.00 to $1,000,000.00 capital, in many other lines there is room for young merchants and manufacturers to begin on limited capital, and "grow up with the country."

THE OREGON IMMIGRATION BOARD is an institution supported by several hundred of the more prominent business men of Portland. The commissioners who direct its affairs are the following gentlemen: CHAS H. DODD, President of the Board, Wholesale Hardware Dealer; H. W. CORBITT, Vice-President, First National Bank; D. F. SHERMAN, Cashier Oregon National Bank; T. F. OSBORNE, Mfr. of Bags, Sails, &c., also President of Chamber of Commerce; D. S. COHEN, Wholesale Notions and Fancy Goods; WM. McFALL, Wholesale Paper; JAS. L. DUNLAP, Real Estate Broker; H. E. DOSCH, Retired Wholesale Boot and Shoe Merchant; ELLIS G. HUGHES, Capitalist.

All communications will receive the most careful attention. Personal visits to Portland are strongly advised. Seeing is Believing. Address correspondence simply,

The Oregon Immigration Board.

Portland, Oregon.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

The well-established business, known as THE GAYLORD, CROSS & SPEIRS CO., located in Waterbury, Conn., is offered for sale. This plant is on the corner of Benedict and Meadow Sts.; consisting of land, brick and frame buildings, &c.; the foundry and all machinery goes with sale; there is between $10,000 and $12,000 worth of machinery that goes with the business. The lot fronts on two streets, 164 feet on Meadow and 219½ feet on Benedict Sts.; there is ample room for another large machine shop or any kind of manufacturing business without being cramped for room; this plant is only two minutes' walk from depot. The reason why this valuable property is put in the market at the price asked is because the owner is West and cannot give the attention that it requires. Take the business in consideration, both in foundry and machine work, it is a rare opportunity that does not occur every day, where one can buy an established business for the low figure, $45,000. The land and buildings alone are worth the price I ask, without the machinery. Address

L. J. BOWEN, Receiver,
Waterbury, Conn.

COAL at **50 cents per ton for twenty years; $1,000,000 cash,** and desirable location, with railway facilities, at **$100 PER ACRE,** worth $500, as special inducements to encourage new manufacturing industries

MEANS that **PITTSBURG, Kansas,** with its unequaled railway connections, is the best point on this continent for the establishing of smelting works, foundries and machine shops and any kind of manufacturing industry consuming coal and looking to the U. S. and Mexico for a market; guaranteeing

PROSPERITY to every dollar invested and every man employed. Gas, 75 cents per thousand. Taxes 3 per cent. on a 30 per cent. valuation; four trunk railways; $7,000,000 invested in industrial enterprises, best of free schools, property cheap. **Now**

TO PITTSBURG **is the time to invest. Come and investigate.** Write for information and **Maps.** **PITTSBURG TOWN CO., Pittsburg, Kan.** A. W. GIFFORD, General Agent.

FOR $25,000

I will sell a very profitable Manufacturing Plant, all running in good shape; goods sold as fast as produced; poor health the only motive for selling; experience not essentially necessary, as all work is produced by the piece; margin of profit very large. Running 15 years without a stop. This is an extraordinary chance for an energetic young man. Address

"MANUFACTURING PLANT,"
office of *The Iron Age*, 66 and 68 Duane st., N. Y

FOR SALE. BLOWING ENGINE.

Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address

JAMES LEFFEL & CO.,
Springfield, Ohio.

OLD METAL WANTED.

Heavy Brass, Copper and Brass Turnings; state quantity and price for spot cash.

E. A. WILLIAMS & SON,
107 Plymouth St., - - Jersey City, N. J.

AN old-established Manufacturing Concern, employing a capital of over $100,000 and 125 men, being cramped for space, owing to a steady growth of business, desires a new location with good railroad and water facilities; offers of land and a cash bonus to cover cost of new buildings and moving will have careful consideration.

Address

WM. B. STEWART,
Sing Sing, N. Y.

The best investment now offered to speculative capital is

Coal, Zinc and Mineral Lands

in Southwest Missouri and Southeast Kansas. If you want to buy, investigate by addressing

FRANK PLAYTER,
Investment Broker,
Pittsburg, Kan.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
335 and 342 E. 7th St., St. Paul, Minn.

FOR SALE.

An old-established Wholesale General Hardware Business, located at Burlington, Iowa. Has the advantages of both rail and water communications, and one of the best distributing points on the Upper Mississippi River; good trade already established and am to-day doing a good business; stock on hand about $70,000; have five salesmen on the road, do business in Western Illinois, Northern Missouri, Eastern Nebraska, Southern Dakota and Minnesota and a large portion of Iowa.

The largest portion of my trade comes from Iowa. The territory can be extended and trade increased if desired. This is a rare opportunity for any one wishing to step into a good business already thoroughly established. Reason for wishing to sell out—poor health. For any information desired pertaining to the business and location, I would refer you to Ross & Fuller, 33 Chambers St., N. Y.; Clement M. Biddle & Co., Philadelphia; the National State Bank of Burlington, Iowa, or the undersigned

LYMAN H. DRAKE.

SOUTHERN CALIFORNIA.

CLIMATIC PARADISE OF THE U. S.

No Snow. No Cyclone.

A Store For Sale.

Good will and stock of about $4,000 in Hardware Crockery and House Furnishing goods. Price of the two-story brick building (21 x 45 feet), garden and yard (together 12,131 square feet) $7,000. The city of Anaheim (population 1,500), the oldest settlement of Southern California, is surrounded by an extensive farming country, has the finest drinking water and has for healthfulness no rival on the coast. It is situated about 26 miles southeast of Los Angeles and 14 miles from the Pacific Ocean. The store lies between the Southern Pacific and Santa Fé Railroad depots. Address: Charles Pamperl, Anaheim, Orange County, California.

FOR SALE,

For cash only, to quit business, a nice new stock of Hardware, Cutlery, Guns and Ammunition; established about five years ago, in the great Natural Gas City of Muncie, Ind; stock will invoice about six thousand dollars. Will rent you the room, which is 18 by 60 feet, and is in a first-class situation, opposite the Court House, east side.

L. L. HODGE & BRO.,
104 No. Walnut St., Muncie, Ind.

A RARE CHANCE.

A first-class Hardware Store and Stock for sale, in Northwestern part of New York State, in a good thriving town of 5000 inhabitants; stock consists of Hardware, Stoves, Tin and Kitchen-furnishing Goods; stock would be sold and store rented if desired; can do $35,000 to $40,000 per year with a good profit; stock is all clean and will invoice about $10,000; good reason given for selling. Address "No. 10," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A quarter interest in the largest hardware establishment in a growing Western city of nearly 100,000 inhabitants, doing a business of $250,000 annually. Address

"2943,"

office of *The Iron Age*, 66 and 68 Duane street, New York.

AT A SACRIFICE.

Paying Hardware and Paint Business, in large manufacturing city, 25 minutes from New York; stock $6000; poor health reason for selling; a rare chance for one wishing to buy. Address

"SACRIFICE,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

Address "BEST,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

MILL SITE for Sale or to Rent.

Rare opportunity. Mill situation for manufactures, formerly used as bloomery forge; low rent, with option to purchase. Also, for sale, Charcoal Forge Cinder from iron ore. Also Granite Quarry, near station, 36 miles from New York. Address

P. O. BOX 24, Bloomingdale, N. J.

WANTED.

A second-hand Steam Hammer about 4000 lbs.; must be in good working order. Address with particulars, &c., "DROP," office of *The Iron Age*, 66 and 68 Duane St., New York.

MANUFACTURERS:

Engineering Machine Works for Sale.

The firm of Ribon & March being about to dissolve their partnership by mutual consent, offer for sale their entire plant, consisting of six lots of ground and buildings thereon, in the most convenient business part of Jersey City, and fully equipped with first class modern tools and appliances, all in prime order and condition, and including a valuable patent.

An opportunity to buy a plant for the manufacture of all kinds of machinery, so well equipped has not been recently offered.

For further particulars apply to the firm in person or by letter, at the factory,

First, Second and Provost Streets,
Jersey City, N. J.

A MANUFACTURING COMPANY,

who will have from $75,000 to $100,000 paid up capital, wish to enlarge their works and will seek new location where good railroad facilities and cheap fuel can be obtained; offers of grounds and buildings, with expense of moving will be considered.

Address
HENRY SMITH, Manager,

office of *The Iron Age*, cor. 4th and Main Sts, Cincinnati, O.

WANTED.

A good second-hand Boring Mill, to swing about 50 inches; also lathe of same swing with very short bed. Address, with particulars,

"BOX 717,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

Capital Wanted.

$50,000 wanted by parties starting a Steel Rolling Mill and Forge, with Iron and Steel Sheets as part of a varied product.

Address
"STEEL MILL,"

office of *The Iron Age*, 220 So. 4th Street, Philadelphia.

FOR SALE.

A lot of Boiler Flues 11 inches in diameter and 36 feet long. Cheap.

Address
THOMPSON C. GILL & CO.,
210 S. Third Street, - Philadelphia.

FOR SALE (Second-hand).

2 Colt Compound Drop Presses.
2 70 H.-P. Boilers, 22 ft. long; 48 4-in. tubes 14 ft long; in good condition; suitable for steam or oil tanks.
1 Cutlery Rolling Machine.

At the Bridgeport Iron Yard.
Housatonic Ave., near Congress St.,
GEO. J. BROWN.

Also wholesale dealer in scrap iron, steel and metals, second-hand machinery, engines, boilers, pipe, old railway material.

CUPOLA
FOR SALE.

We have a good second-hand Cupola which will melt with ease 10 tons iron in two hours. It is about as good as new and will be sold cheap. Write for particulars.

MEDINA MANUFACTURING CO.,
Medina, N. Y., U. S. A.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

FOR SALE

At one-half less than actual cost, one R. R. Construction Dump Car adapted to standard gauge track; large capacity; never been used. Cost $80, will sell for $40, cash, f.o.b. cars New Castle. Address
VULCAN IRON CO., Ltd.,
New Castle, Lawrence Co., Pa.

What Have You You Want Sold?

A thoroughly practical business man, who will start on a business trip through the Northwest and West about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address
"TWO-THIRDS,"
office of *The Iron Age*, 66 and 68 Duane st., N. Y.

FACTORY FOR SALE.

A commodious and well-built brick Shop, 40 ft. x 120 ft., two stories high, with first floor clear of posts; engine and boiler house attached, fitted with shafting, heating apparatus, &c.; with additional lot 55 ft. x 140 ft. connected, all for sale at a low price; reason for selling, new shop twice the capacity being built. Terms and prices can be obtained by referring to
THE NATIONAL PIPE BENDING CO.,
New Haven, Conn.

CAPITALIST wanted to engage in the wholesale hardware business in this city. To one who is familiar with the trade a rare opportunity is offered. Communications may be addressed in confidence to "VIATOR," office of *The Iron Age*, 66 and 68 Duane St., New York.

For Sale.

A good, clean stock of Hardware, Stoves and Tinware, with Tin Shop connected, located in the prosperous City of Charlotte, Mich.; stock and fixtures will invoice about $7000; business has been established about 20 years; reasons for selling, one of the partners wishes to engage in other business. For further particulars, address
LOCK BOX 368, Charlotte, Mich.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

FOR SALE.

On reasonable terms, an improvement in Butt, Strap, T and Gate Hinges, patented Sept. 16th, 1890. Strong and durable. Can be packed in boxes as shelf hardware. Manufactured and galvanized at one-fourth the price of plain iron now in use. Address "B.," 663 N. 13th Street, Philadelphia, Pa.

FORK HANDLES CHEAP.

We offer to car lot buyers a large quantity of dry 4½ and 4¼ foot long manure Fork Handles. Will bend, chuck, bore and belt if desired.

The IOWA FARMING TOOL CO.,
Manufacturers,
Fort Madison, Iowa, U. S. A.

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need apply in person, with references, to
THE EATON, COLE & BURNHAM CO.,
82 & 84 Fulton St., New York.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

FOR SALE.—One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address
VULCAN IRON CO., LTD.,
New Castle, Lawrence Co., Pa.

WANTED.

Competent and reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
21 Grand Ave., Brooklyn, N. Y.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

FOR SALE at less than one half cost, one Iron Tank, 5 ft. deep, 5 ft. in diameter, made of 3-16 in. iron. For any further description and price address
VULCAN IRON CO., Ltd.,
New Castle, Lawrence Co., Pa.

FOR SALE.—Hardware, Tool and Factory Supply Store, well established in a good manufacturing district; will be sold at inventory.

HINDLEY & KEEHAM,
61 Greenpoint Ave., Brooklyn, E. D., N. Y.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa

English Tin Plate Mills for America.

F. R. PHILLIPS, of 201 Walnut Place, ***Philadelphia***, has been ***authorized*** to act for the celebrated and world renowned firm of ***Rolling Mill*** builders, ***THOMAS PERRY & SON, Limited***, of ***Bilston, England***, in the matter of ***contracting for and erection of Tin Plate Mills*** of the most ***modern designs***.

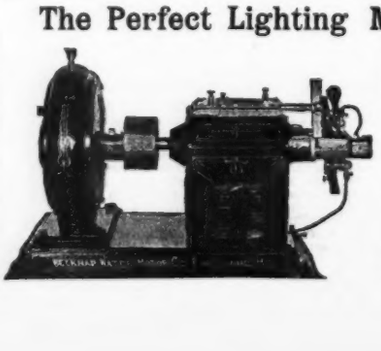
As a practical ***Tin Plate*** manufacturer I control certain Tin Plate ***labor saving*** machines and am prepared to furnish ***designs and contract*** for ***complete mills*** in every particular, including ***mill furnaces, mills, cold rolling, annealing furnaces, pickling and tin house*** equipments, ready for work.

Competent reliable ***workmen*** will be provided to ***operate*** each department and instruct others in every branch of the business.

CORRESPONDENCE SOLICITED.

F. R. PHILLIPS, - - - - PHILADELPHIA.

The Perfect Lighting Machine for Isolated Plants.



Belknap Little Giant Water Motor

(IMPROVED.)

Combined Motor and Dynamo, Electric Motors and Dynamos and Cyclone Coffee Mills.

The most powerful and efficient motors in the world Write for particulars.

Belknap Motor Co., Portland, Me., U. S A.

TAKE NOTICE.

Representing a firm in Pottstown, Pa., who have foundry, machine shop, etc., attached, we want specialties such as boilers, engines, pumps, machinery, or what not, to manufacture either upon royalty or to make and sell. We have the plant, money and experience. It will pay you to write me.

H. H. MANSFIELD,
52 Wall St., New York.

ESTABLISHED BUSINESS.

A clean stock of hardware, factory supplies, housefurnishing goods, stoves and tinware, located in a growing city of 16,000 inhabitants near New York, doing a business of $30,000 annually; business could be increased; would sell stock at market prices; good reasons for selling. Address

"CHARLES,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

For Sale at a Bargain

To anyone who wishes to purchase for their own use.

1 Pease Planer, to plane 24 in. wide, 22 in. high and 6 ft. long.

1 25-Light Dynamo for Incandescent Lights.

DANIEL KELLY,
51 North 7th St., Philadelphia, Pa.

FOR SALE AT A BARGAIN.—One of Brown's Patent Hoists in good condition, in use but a few months. For any further description and prices address

VULCAN IRON CO., Ltd.,
New Castle, Lawrence Co., Pa.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

A FIRST-CLASS TRAVELING SALESMAN for German Hardware and Cutlery. Only those with a trade and experience need apply. Address VOM CLEFF & Co., 105 Duane St., New York City.

MAN OF EXPERIENCE as Foreman or assistant foreman in shop building special heavy machines; state age, experience, references and wages expected. Address "SPECIAL MACHINERY," office of *The Iron Age*, 66 and 68 Duane St., New York.

MECHANICAL ENGINEER with experience in elevator work and competent to do estimating, laying out, etc., in the office and works. Address P. O. Box 211, Chicago, giving age, experience, references, salary, etc.

A MAN of experience as foreman in a Wire Nail shop to take charge of night gang. Also six wire nail machine operators of experience. Also a man who has had some experience at lathe work. Address "LATHE WORK," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

AN EXPERIENCED MAN to take charge of Wire Nail Department. To the right party, good salary and permanent position. Address "WIRE NAIL," office of *The Iron Age*, Hamilton Building, Pittsburgh.

TREASURER WANTED.—An experienced financial manager who can control $10,000 to take the position of Treasurer, who has ability and experience in manufacturing. The works are situated in one of the most flourishing and enterprising cities in the Northwest. First-class references given and required. Address "A. D.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

FIRST-CLASS STOVE and Hardware Salesmen to take one good selling specialty on a commission. Address W. H. PECKHAM, Minneapolis, Minn.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING Co., Cuba, N. Y.

SUPERINTENDENT for a Bessemer Steel Works, engaged in the manufacture of soft steel. He must have had experience in the business, be acquainted with all its details and be able to manage men. To such a man a good salary will be paid. Address, with reference, "BESSEMER," office of *The Iron Age*, 66 and 68 Duane St., New York.

A GENERAL MANAGER or Foreman in a Foundry now in operation, running about ninety moulders, making light gated castings, both grey and malleable iron; persons applying for the position will please give reference and experience in making air furnace and cupola malleable iron castings. Address "AIR FURNACE," office of *The Iron Age*, 66 and 68 Duane St., New York.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A SITUATION by a practical bar and guide mill roller from 10 in. to 20 in. train. I have had charge of trains for 13 years. I can give good references. Address "10 to 20," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

AS FOREMAN of a malleable or light grey iron foundry; understands making malleable iron from air furnace and cupola; also understands annealing and pattern making; can give the best of references. Address "LIGHT GREY," Office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGH, practical and scientific man desires to take charge of blast furnace, steel works, in any way concerning the mining and manufacture of iron; also in addition can sell 20,000 tons of iron a year. Address "ONWARD," office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGHLY posted, experienced traveling hardware Salesman is now open for one more line of hardware specialties on salary and commission; have three lines now and can take the fourth, doing each full justice; terms reasonable. Write to "SALESMAN," care drawer No. 328, Rochester, N. Y.

POSITION as Superintendent in Hardware Factory, light or heavy, by a thoroughly practical man; good references. Address "POTTS," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MAN of 30 years' experience in the steel trade, a position to take charge of rolls as foreman in a mill or hammer shop, or will undertake the entire control of a crucible steel plant. Address "FOREMAN," 73 Green St., Cumberland, Md.

A GENTLEMAN of character and ability, with nine years' experience in the Iron, Steel and Hardware business, would like to correspond with some good manufacturer in the Iron and Steel or Hardware line, desirous of establishing a branch office or agency at Cleveland, O. Address "J. F. C.," office of *The Iron Age*, 219 Superior St., Cleveland, O.

YOUNG MAN, thoroughly posted in General and Builders' Hardware and Cutlery, wholesale and retail, wants position with a reliable concern; 15 years' experience as salesman, bookkeeper and general office man; reference A1. Address "NUMBER 101," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION WANTED by practical Foundryman familiar with all details in the production of soft, light and medium weight gray iron castings; can use molding machines to an advantage; 25 years' experience in the management of foundries employing from 10 to 100 men; American, middle age, strictly temperate; unquestionable references furnished. Address "CASTINGS," Lock Box 433, East Brookfield, Worcester Co., Mass.

ATTENTION Lock and Builders' Hardware Manufacturers. A young married man, who is a practical manufacturer of Hardware, has had long experience as master mechanic of large works in Connecticut, an expert pattern and tool maker, and has a thorough knowledge of every detail of the business. Parties who are in need of an able man as manager or superintendent, please address "H. B. H." Box 100, office of *The Iron Age*, 66 and 68 Duane Street, New York.

BY MOLDER of 35 years' experience as Molder and Foreman; would like to superintend a shop doing good class of work; or would take a foundry doing rolling mill, steel works, blast furnace or wire mill work by the ton. Address "FOUNDER," office of *The Iron Age*, Room 511 Hamilton Building, Pittsburgh.

W. H. GOLDEY, of New York City, who is a good salesman and a hustler, would like to represent one or two manufacturers of Hardware or Novelties; 15 years' experience, with a large acquaintance all over the country, as well as New York and vicinity. W. H. GOLDEY, 103 Chambers St., New York City.

AS A HARDWARE SALESMAN in the house or on the road. I have had 20 years' experience in the retail hardware business and can give good reference as to character and habits. Address WILL A. FOWLER, No. 908 W. Wabash Ave., Crawfordsville, Ind.

HARDWARE CATALOGUE COMPILER. Will take entire charge of the work; have had ample experience, as well as knowledge of jobbing hardware business; can give estimates of cost, time necessary to complete a large catalogue, etc. Satisfaction guaranteed: best of references. Address "COMPILER," Box 386, Kansas City, Mo.

MECHANICAL ENGINEER and Draftsman, experienced in the designing of machine tools, special machinery, traveling cranes, hoisting machinery, hydraulic machinery, transmission of power, steam engines, single and compound, rolling mill work, etc., desires engagement. Address "CONSOLIDATION," office of *The Iron Age*, 66 and 68 Duane st., N. Y.

RESPONSIBLE situation as head draftsman, superintendent or assistant. First class service for first-class pay. Address "W. T.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SITUATION AS FOREMAN, by a Machinist and Draftsman, technical graduate; eight years' experience in machine shop and drafting room; familiar with modern methods and tools. Address "GRADUATE," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A THOROUGHLY experienced Hardwareman, a position as Traveler or Correspondent; has an experience of 15 years; for past six years had general charge of a large business, prior to which was on the road; fully competent to fill any important position in connection with the Builders' Hardware business. Address "A. M. B.," Box 7, office of *The Iron Age*, 66 and 68 Duane St., New York.

A POSITION as Secretary and Treasurer; prefer manufacturing, having had upward of 10 years' experience in that direction; am middle aged, married and have unexceptionable references as to capability and strict integrity. Address "NEW ENGLAND," Box 51, office of *The Iron Age*, 66 and 68 Duane St., New York.

A WELL-KNOWN Hardware Salesman would like to make arrangements with some good manufacturer, to represent his line in the West and Northwest, where he has traveled for the last 15 years; would like a line of chisels and drawing knives, wrenches, or three or four small lines. Address "S. S. S.," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY MIDDLE AGED MAN, as foreman of Architectural and Machine Foundry. Best of references. Address "ARCHITECTURAL," office of *The Iron Age*, 59 Dearborn st., Chicago.

POSITION as Superintendent of Blast Furnace, by a practical man of experience in operating and burdening furnaces, including all chemical work; can take hold in any position pertaining to furnace; references furnished. Address "C.," Box 67, Wheeling, W. Va.

A GENTLEMAN competent to undertake both the business and technical work desires a position as General Superintendent of a Coke Furnace; practical experience as furnace manager. Address "TECHNICAL WORK," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

ROLL TURNER.—A young man of sober, steady, industrious habits, who has had considerable experience at roll turning, would like to engage with responsible manufacturer to finish his trade. Address "HORICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN of 17 years' experience as Superintendent of large machine shops and foundries, well up in all kinds of engine work, also railroad work, car wheels, &c., will be at liberty Oct. 1, 1890, for engagement. Address "WHEELS," office of *The Iron Age*, 66 and 68 Duane st., N. Y.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

A New and Splendid Companion to all the Metal Industries.

Fully abreast of the latest inventions and discoveries, as well in the largest and coarsest as in the smallest and finest of metal work.

JUST READY.

Price, $2.50.

Free of Postage to any address in the world.

THE

Metal Worker's Handy Book

—OF—

RECEIPTS AND PROCESSES.

Being a collection of Chemical Formulas and Practical Manipulations for the working of all the Metals and Alloys, including the Decoration and Beautifying of articles manufactured therefrom, as well as their preservation. Edited from various sources by William T. Brannt, editor of "The Techno-Chemical Receipt Book" and "The Metallic Alloys." Illustrated by 63 engravings. One volume, over 500 pages, 12mo, elegantly bound in scarlet cloth, gilt, closely printed, containing a vast amount of valuable matter on all the Metals and Alloys, not to be found in any other book in the English language.

☞ *Price $2.50, free of postage to any address in the world.*

☞ *A circular of 24 pages, showing the full Table of Contents of this valuable book, will be sent free and free of postage to any one in any part of the world who will furnish us with his address.*

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INDUSTRIAL PUBLISHERS, BOOKSELLERS AND IMPORTERS,

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LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND. OREGON.

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

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EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to

ROBERT R. HAYDOCK & CO., and E. BISSELL & CO

WHOLESALE

HARDWARE AUCTIONEERS,

12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

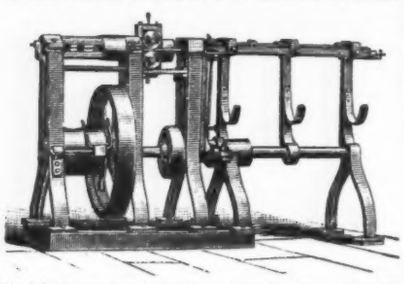
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FOSDICK & PLUCKER,

SIXTH and CULVERT STS., CINCINNATI, OHIO.

AUTOMATIC

WIRE STRAIGHTENER and CUTTER



Straightens and cuts accurate lengths from the coil.

—MANUFACTURED BY—

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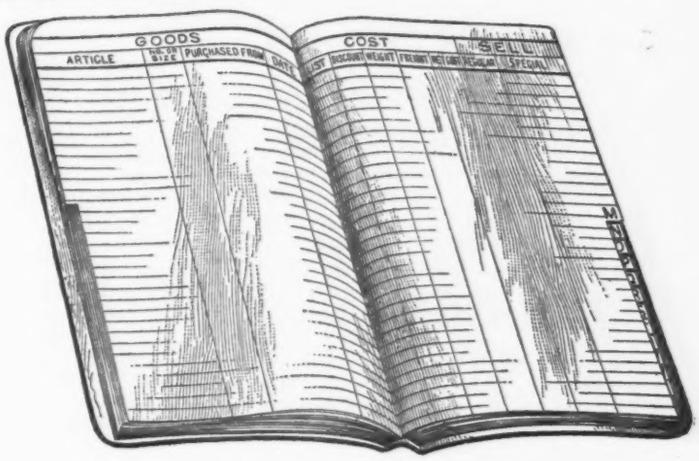
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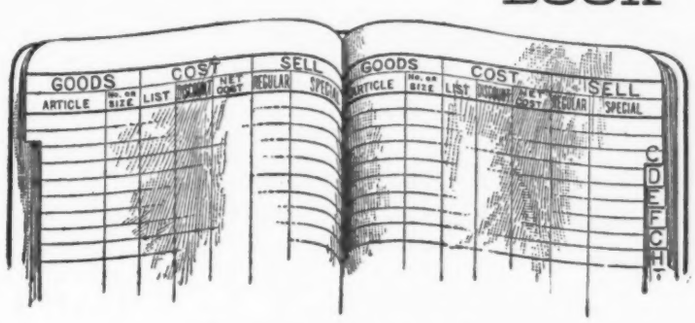
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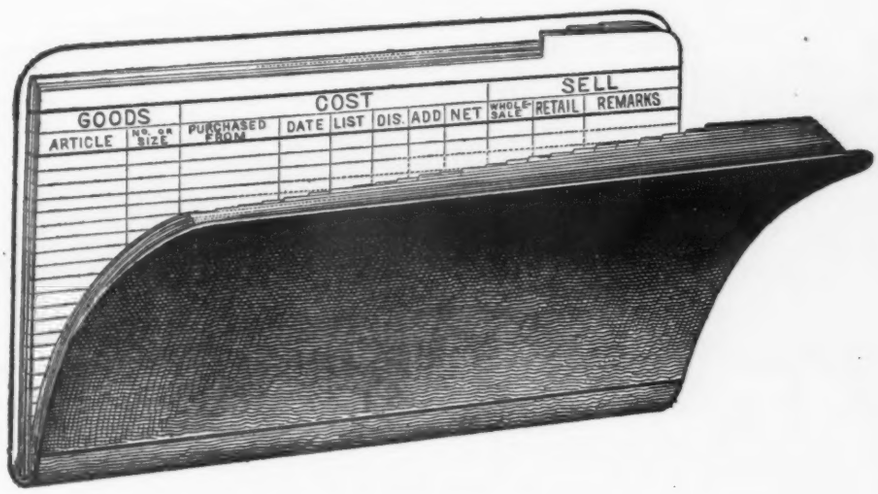
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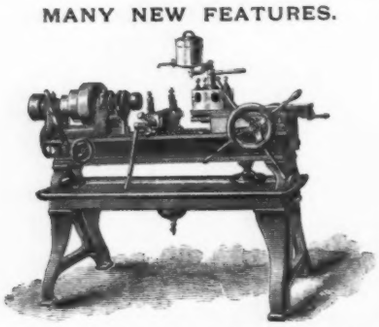
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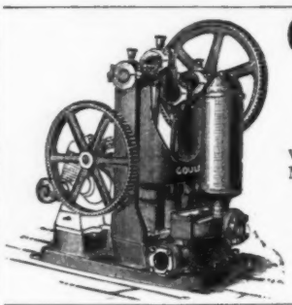
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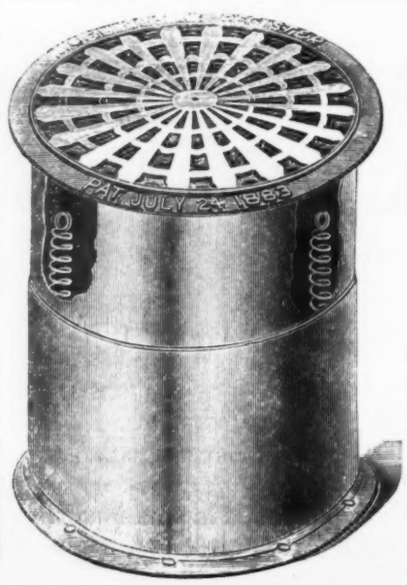
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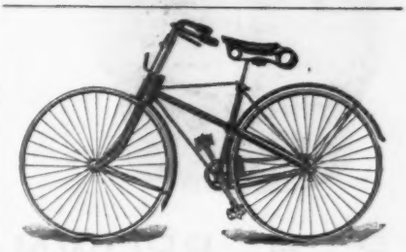
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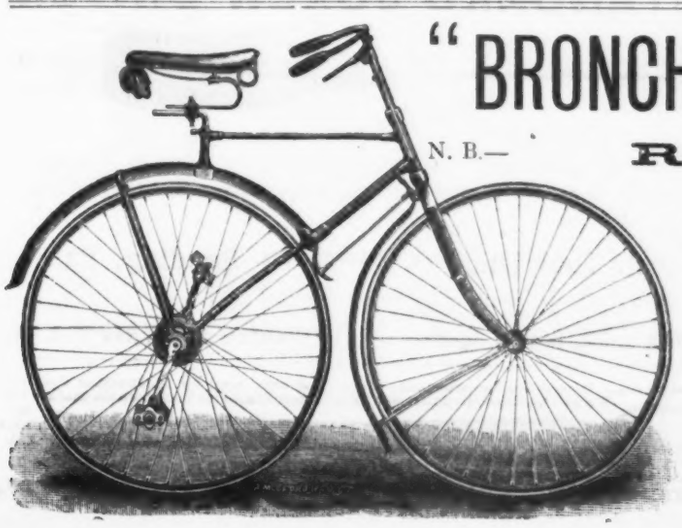
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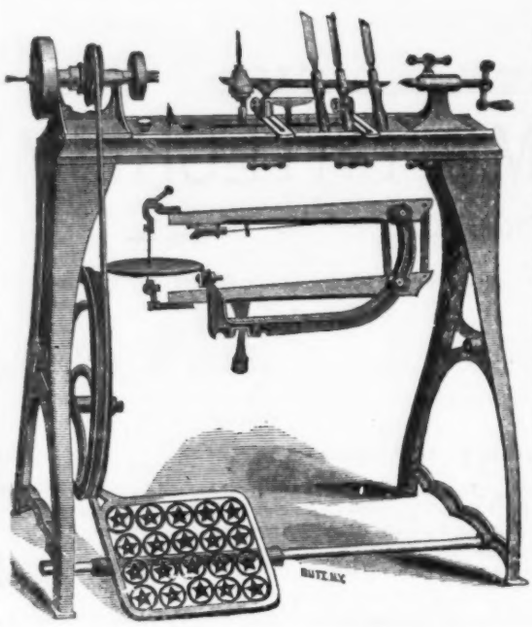
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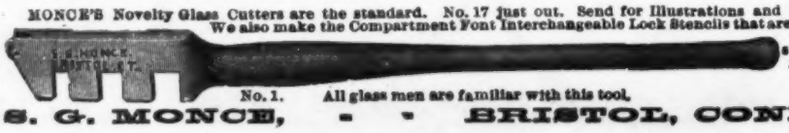
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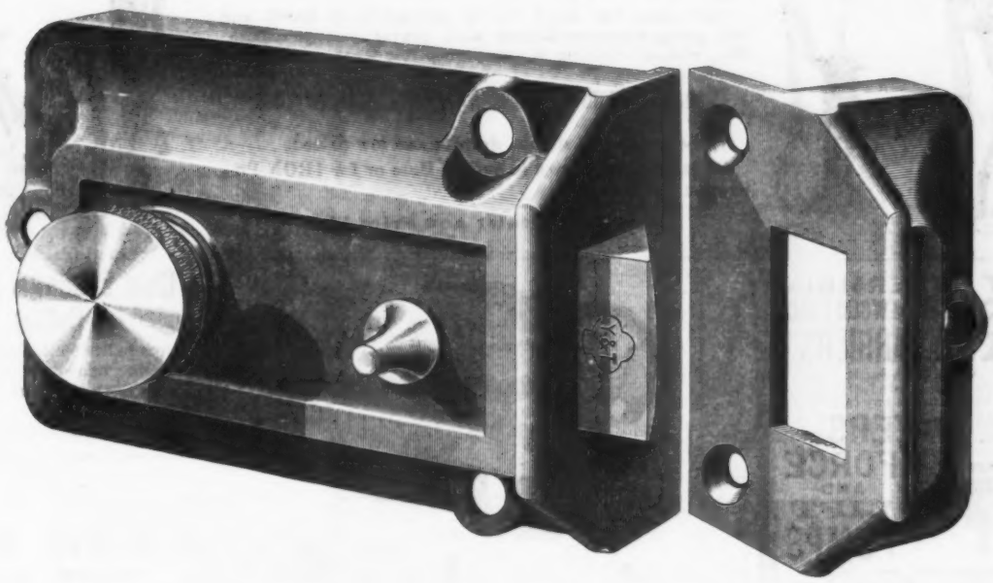


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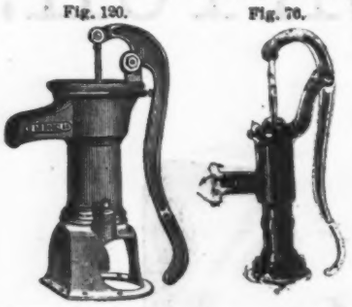
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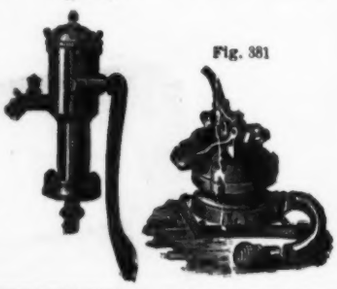
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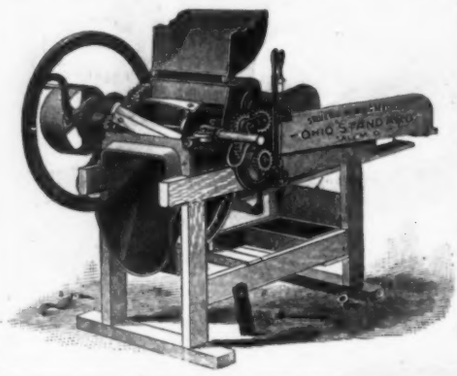


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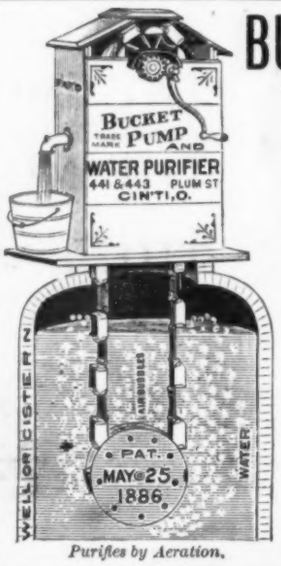
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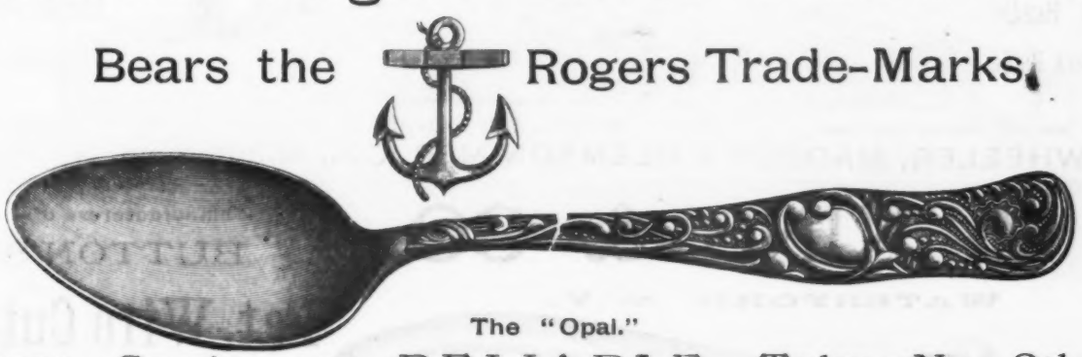
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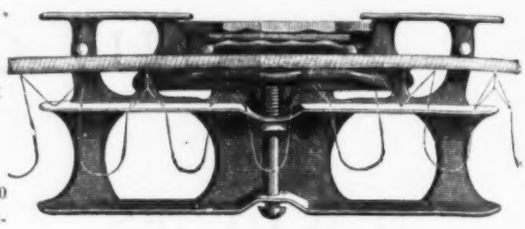
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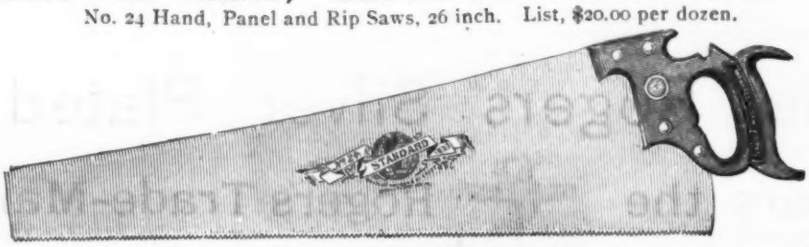
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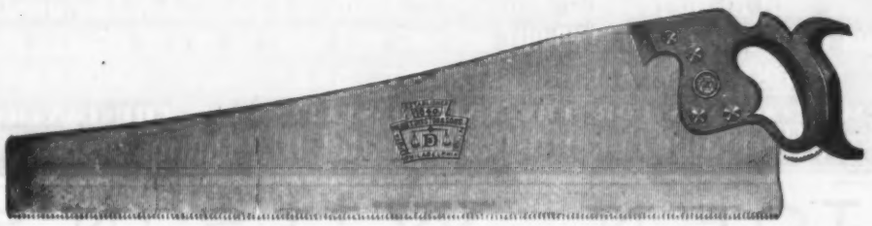
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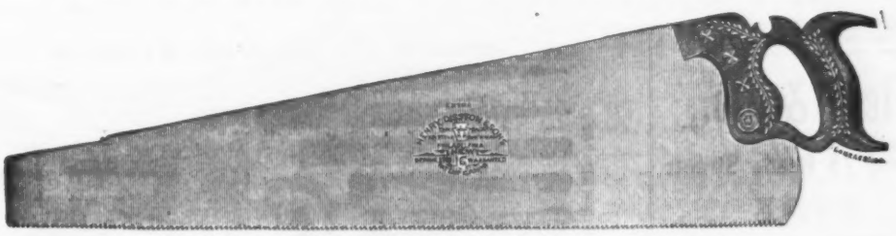
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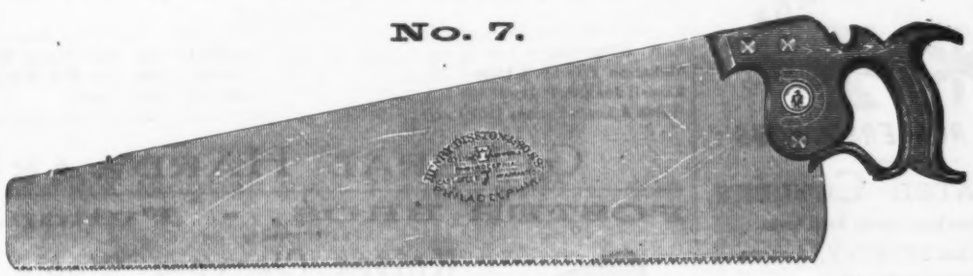
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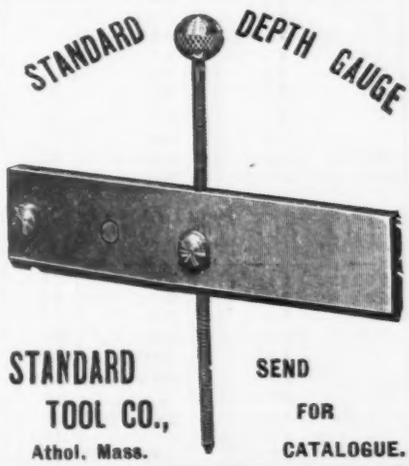
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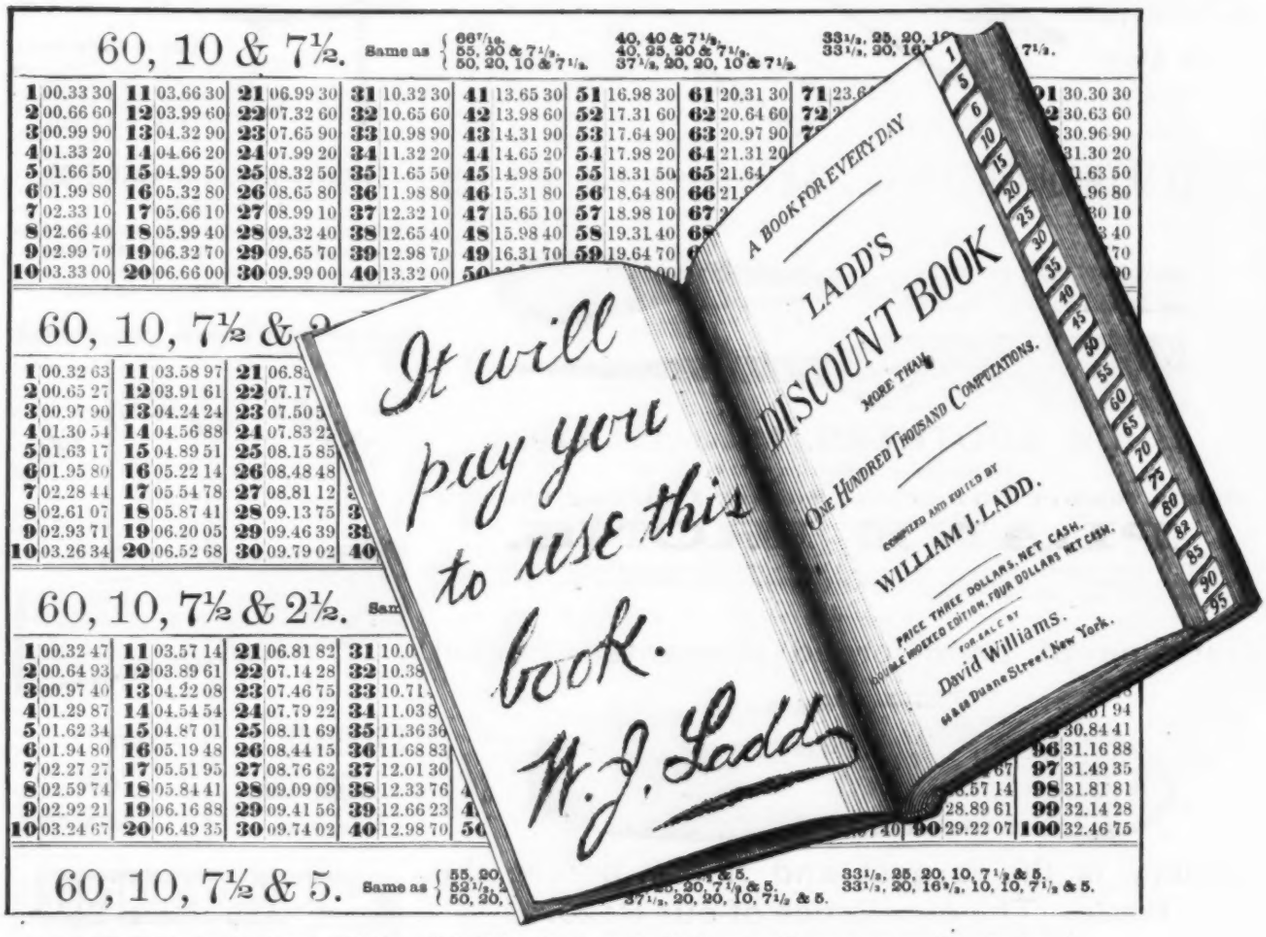
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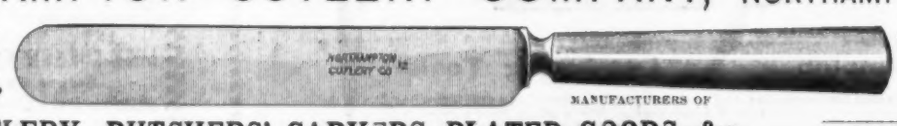


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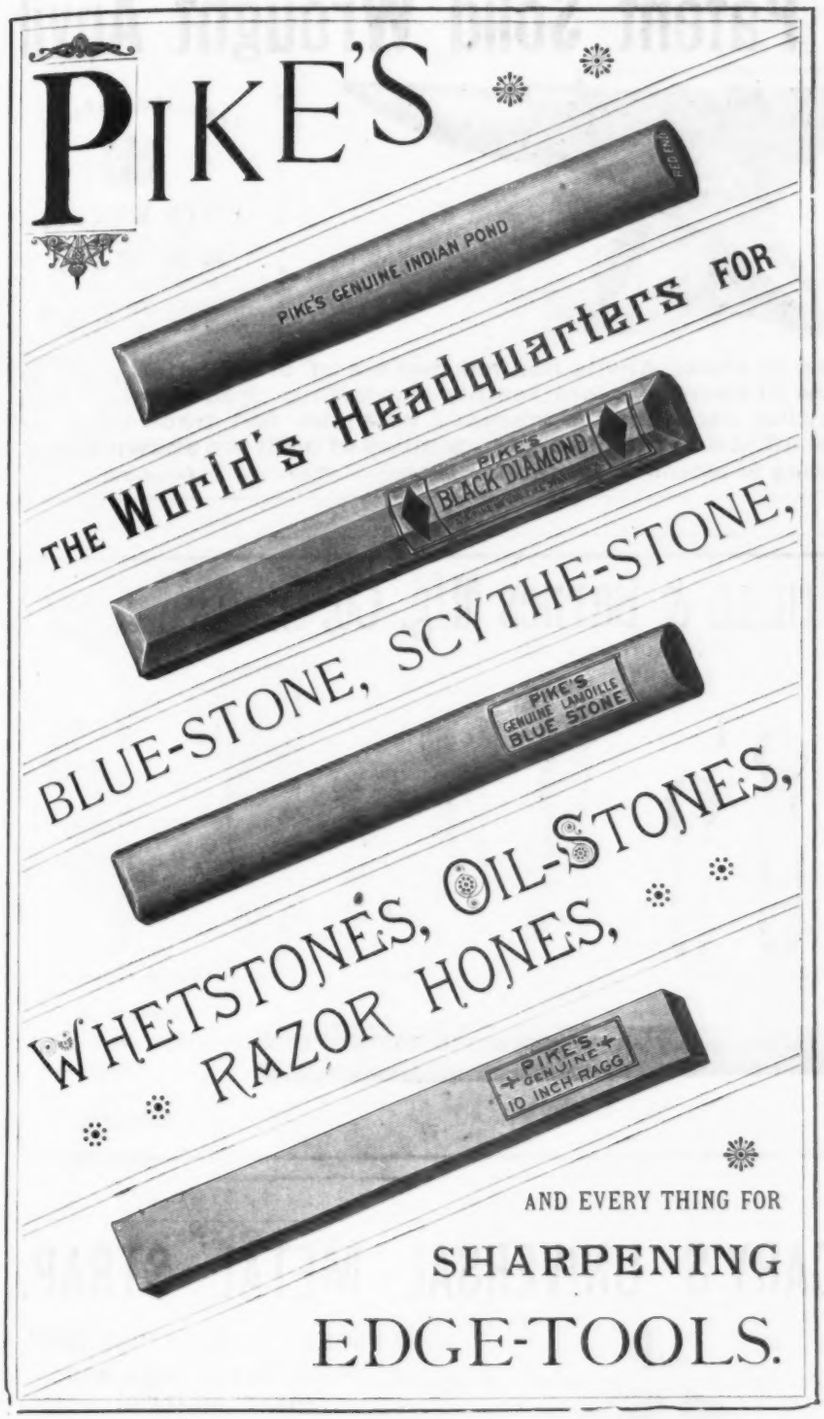


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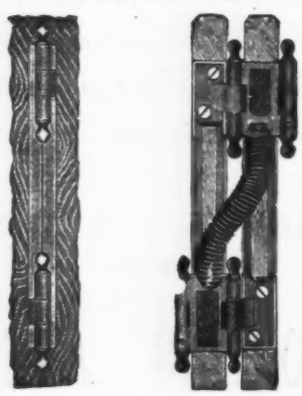
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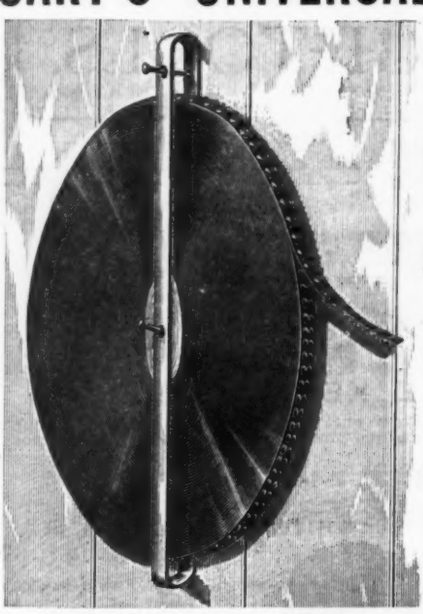
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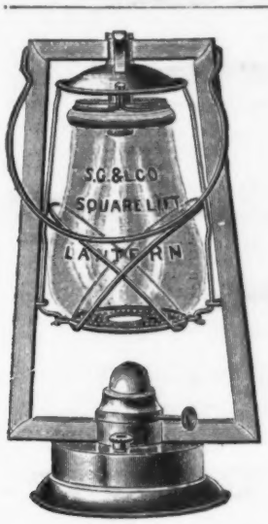
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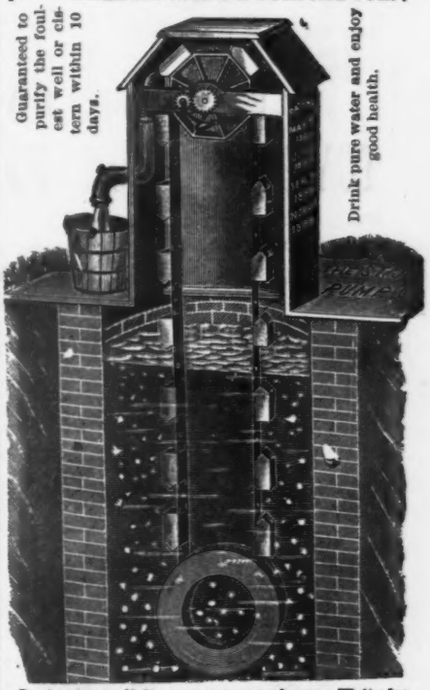
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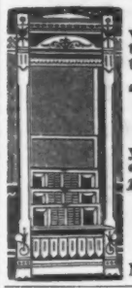
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you will miss it in *style, quality, durability, convenience and price.* Agents wanted.

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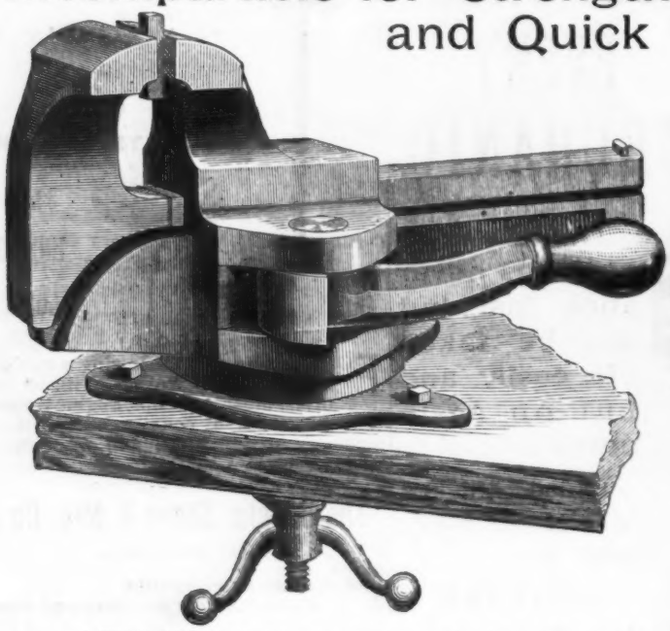
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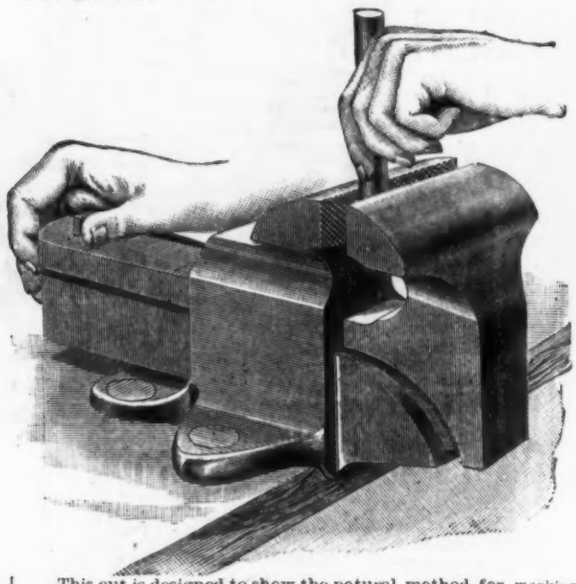
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Made both in FLAT and SWIVEL in 2 in., 2¾ in., 3½ in., 4½ in., 5½ in., 6½ in. width of Jaw.



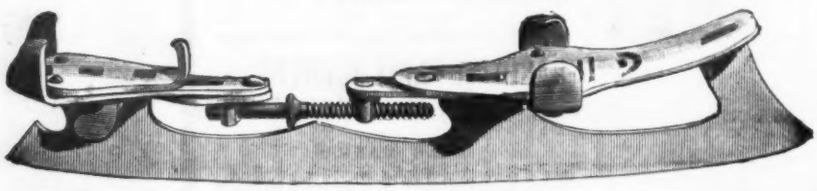
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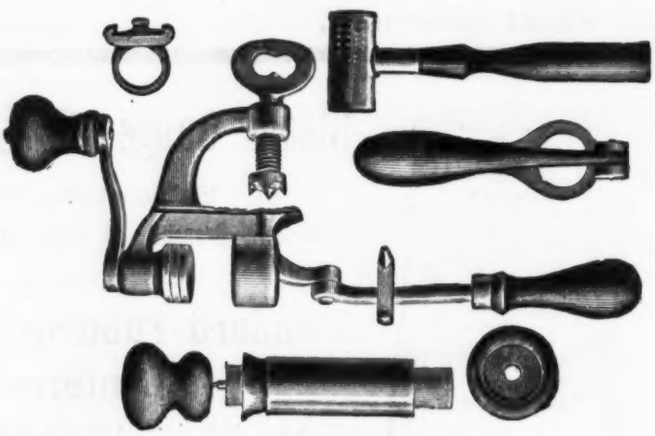


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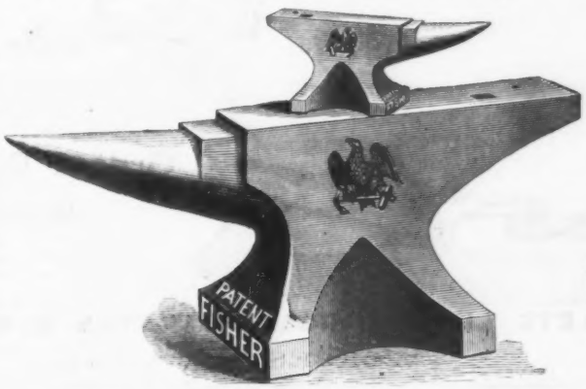
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Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough *untempered steel*, never to break or bend. *Only Anvil made in United States fully warranted as above.*

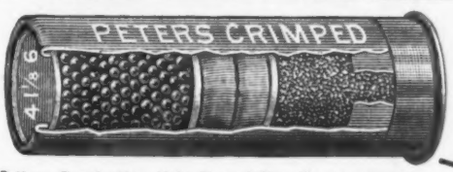




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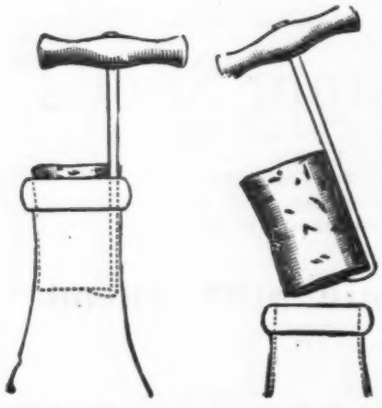


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Corkscrews No More.



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The sides and roof are constructed of Corrugated Iron set in a frame of Michigan Pine. The front is a good five panel sash door set in a frame of 2 x 4 pine. The upper panel is set with glass. The whole is neatly painted—two coats and two colors. Has a good latch with porcelain knob, and door spring. It is **Ornamental, Light, Strong, Cheap and Durable.** Anybody can set it up or take it down. Not necessary to have a carpenter. Storm Doors can be taken away in case of removal. The sides of the house are hinged to the front and fold inwards. The gables are hinged to the roof and fold inwards. The whole structure is only six inches thick when folded. To set it up, hook the edges to the door frame and adjust the roof to the top of the door frame. A notch may be sawed in the bottom rail for a projecting step or thresnold if necessary. They save their cost in fuel every year, besides the comfort they give. Exclusive agencies given.

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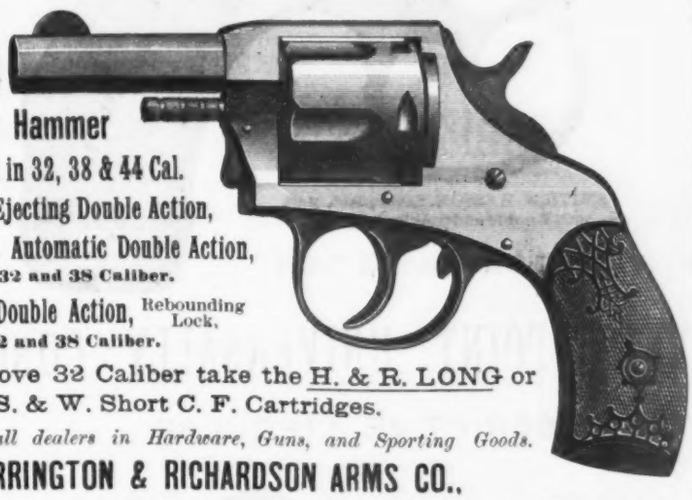
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Just the thing that is wanted at present. This machine is the most simple and durable in the market. Can be recharged for the small sum of 10 cents. Carries no pressure until required. Has no bottles to break, no screws to unloosen, or harness, as it has a handle which makes it easy to operate. It throws a stream 45 feet in length. Will not injure flesh or fabric. Think of the great improvements over all other machines. Call or write.

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No other contains its chemicals forever dry in compartments. None other mingles its chemicals in solution at the will of the operator. Ready for instant use Cannot freeze. Cannot diminish in volume by evaporation. Cannot deteriorate with age. All insurance men approve No acid in the compartment pail. It will not affect the skin, does not injure textile goods nor alter colors. Instantly extinguishes the fiercest fire.

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☞ Send two-cent stamp for full list.

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A GOOD SELLER.

Prices quoted on Application.



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"Conroy" Refrigerator Door Fasteners.

LIGHT BRASS CASTINGS

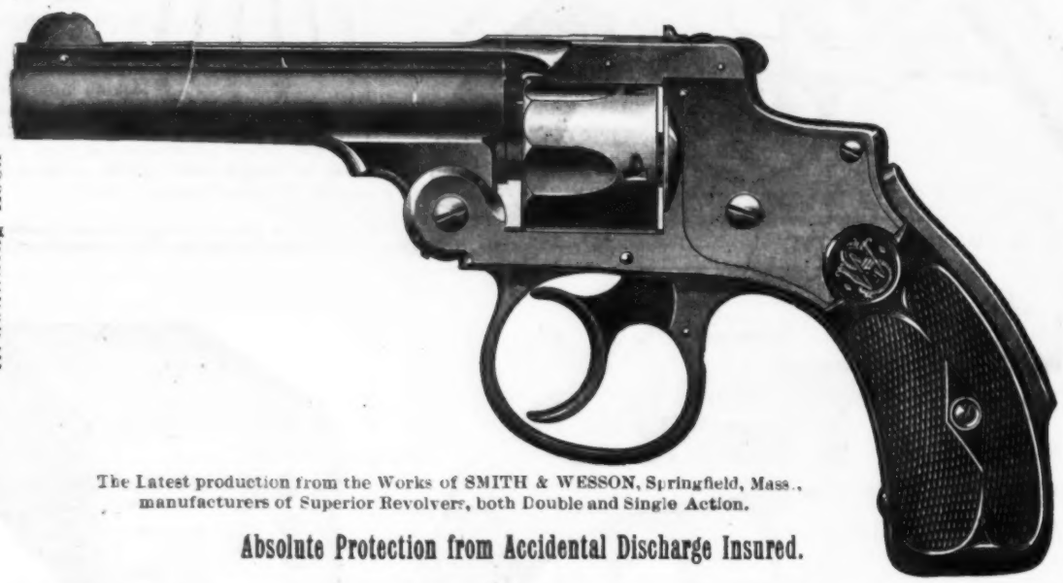
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BUFFING COMPOSITIONS.

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A saving of 15 to 20% (if properly used) over any other compositions in the market.

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It has no equal for hard service. The reinforced piece stiffens the back and braces the ends.

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Best designs, made by accurate machinery, and on the interchangeable plan. Only line of Reels in the world so made.

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ARCTIC ICE DOGS.

These Ice Dogs or Creepers, designed to secure safe-footing on slippery pavements, are the simplest and best ever invented. They consist of a very light, malleable casting of the best quality of iron, fitted for the sole of the shoe and fastened to the foot by means of a toe-strap and an endless elastic band drawn high over the heel, thus holding the dog to its place, and being easy of adjustment, is very quickly put on or taken off.

There are two sizes, for ladies and gentlemen respectively, and the peculiar adjustment attaches them equally well to boots, shoes or rubbers, without difficulty or delay.

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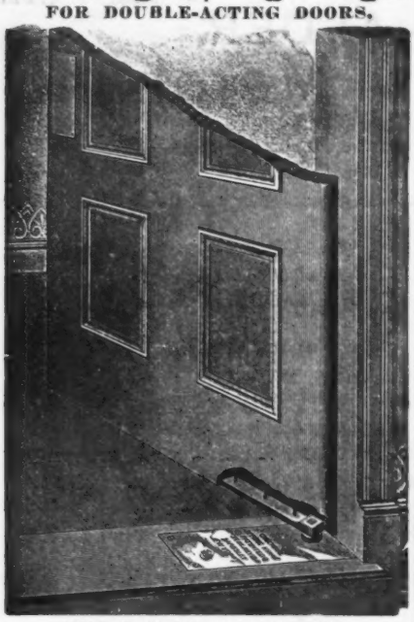
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Checking Spring Hinges
FOR DOUBLE-ACTING DOORS.



Silent, Gentle, Effective and Durable.

J. BARDSLEY, 59 Elm Street, New York.
—AND—
YALE & TOWNE MFG. CO..

THE NEW MODEL, OUR LATEST and BEST MOWER.



For Simplicity and durability and quality of work, it is unequalled, while for Lightness of draft it excels by a large percentage any other Lawn Mower made. Send for circular and price-list.

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"RIVAL"
PATENT
Lawn Sprinkler.
Cheapest and Best in Use



Agents Wanted. Liberal discount to buyers.

The Spray from it covers upwards of 1000 sq. feet of lawn. It is the only patent adjustable Sprinkler which is adaptable to any water pressure. Being made of brass, and having no revolving parts to wear out, or small opening to clog up, it can be operated with sandy or muddy water as well as clear, and will last for years. To operate, screw Sprinkler on end of hose, stick the rod in to the ground in a vertical position, adjust the acorn to suit pressure and spray wanted and it is ready for use. It may be so regulated as to throw a spray *as coarse as rain or as fine as mist*, and will make one of the most beautiful fountains imaginable. It is unequaled in merit, requires no attention and is sold at a less price than any sprinkler in the market. Remember, the RIVAL is the only Sprinkler made by which the coarseness of the spray and the area to be wet can be regulated. They are packed 1 doz. in a box, and finished either plain or nickel plated.

FULL SIZE.

¾ Inch Regular Hydrant Thread, . . . $7.50
1 Inch, Hose Thread, to order, per doz. 12.00
1¼ Inch, " " " " "
Sample Sprink for sent prepaid on receipt of 60 cents

The JOHN H McGOWAN CO
Cincinnati, Ohio.

J. A. CHAILLAUX & BRO,
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Manufacturers of
Hindostan Oil Stone, Axe Stones, Slips and Hacker Stone.

SPECIAL SIZES MADE TO ORDER.

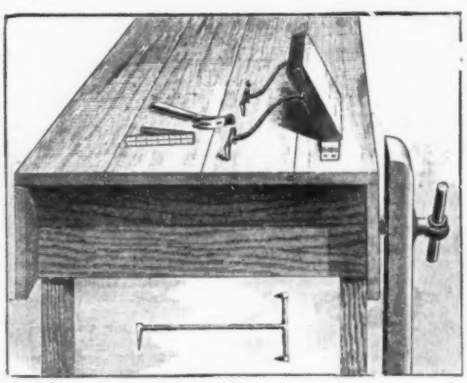
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THE "ACME" CAN OPENER.



SEE HOW IT'S DONE?

Simplest thing in the world. Yes, any shaped can. Cuts close to the edge. Nothing to get out of order. Blade is steel, tempered. Lasts a lifetime. "Best one yet" they all say.

Goodell Co., - Antrim, N. H.
SOLE MANUFACTURERS.



HUMPHREY'S
BENCH CLAW

As seen in the cut, these tools are very handy for bench use to hold the stock at any angle while working it.

All are cast steel, strong and neat, and finished in bronze.

They are made for head or foot use on the bench, as ordered.

HUMPHREY TOOL CO.,
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A MAN OF SAMPLES.
Something About the Men he Met "On The Road."
BY WM. H. MAHER.

Should be read by every business man in the country.

It is a book full of keen points about business men and business methods, from the pen of a successful merchant who has not only been "on the road" but has been book-keeper, buyer and head of a house doing a large trade.

The merchant who stays at home can see how men work on the road.

The book-keeper can learn how his letters and drafts are looked upon by the men he writes to.

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Those who advertise can learn from one of the best advertisers in the United States.

Actual names of men and houses are given, but not a line in the book has been paid for in any way.

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No. 5 Meat Chopper.

Enterprise Meat Choppers

ARE THE **BEST IN THE WORLD.**

TEN SIZES, $2.00 TO $200.00.

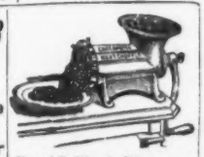


No. 41 Meat Chopper.

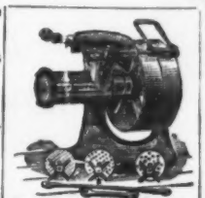
OUR POWER CHOPPERS

Do Not Heat the Meat.
Do Not Discolor the Meat.
Are Almost Noiseless.
Ice Can be Worked Through Them.
THEY SAVE POWER.
Do the Work Rapidly.
Do Not Grind the Meat.
Can Be Used as Mixers.
Are Easily Cleaned.

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No. 22 Meat Chopper.



No. 41 Meat Chopper.



No. 52 Meat Chopper.



No. 10, Large Family Size, $3.00.

They are unexcelled for chopping



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Our Family Size Meat Chopper No. 10 has recently been improved in an essential feature. A drop forged steel plate (standard size, 5-32 inch holes) has lately been substituted for the ordinary cast plate, thus making the chopper capable of cutting 50% FASTER, FINER and EASIER than heretofore.



No. 52 Meat Chopper.

OUR FAMILY SIZE MEAT CHOPPERS are SOLD BY ALL HARDWARE AND HOUSE FURNISHING STORES.



No. 62 Meat Chopper.

Sausage Meat, Mince Meat, Hamburg Steak for Dyspeptics, Hash, Tripe, Hog's-Head Cheese Suet, Clams, Chicken Croquettes, Chicken Salad, Scrap Meat for Poultry, Cod Fish, Peppers, Corn for Fritters, Scrapple, Cocoanut, Stale Bread for Bread Crumbs, &c. Also for making Beef Tea for Invalids, Mashing Potatoes, Pulverizing Crackers, &c., &c., &c.

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It is the only Nail Puller that cannot get out of repair.
It is without springs.
It is finely polished, and
It is the only Nickel Plated Nail Puller on the market.
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It is thoroughly inspected and adjusted with great care.
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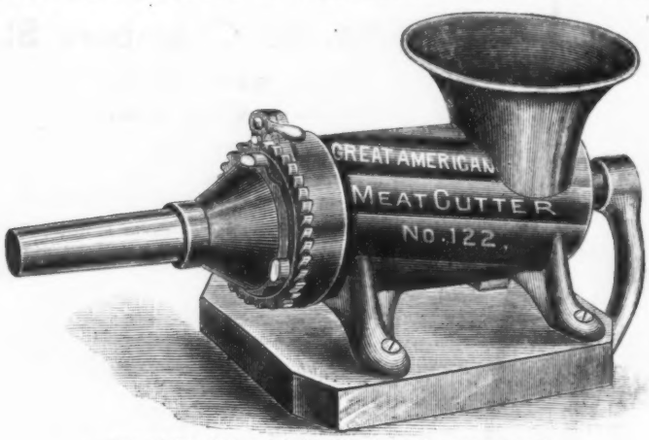
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PATENT REVERSIBLE KNIFE.

Best in the Market.

No. 112, with Clamp, will cut	2 lbs.	per minute,	each,		$2.00
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" 122,	4	"	"		4.00
" 124, 40-inch Fly-Wheel,	300	per hour,	each,		25.00
" 126, to screw to table,	200	"	"		8.00
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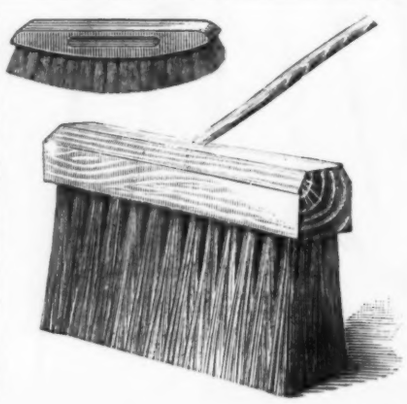
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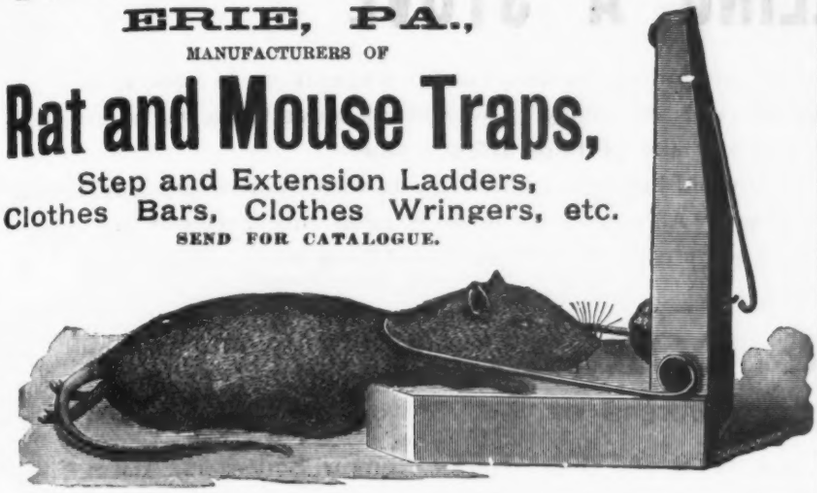
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They are well recommended by those who have them in use. It is the only can opener that will cut off the top of paint pails. There are hundreds in use for this purpose.
It cuts stove pipe, tin pipe, &c., to perfection. The blade is made of the best cutlery steel, and the spring is of the most reliable make. For sale by all wholesale hardware dealers. Samples will be forwarded to any address on receipt of 50c. Address **Wheeler Patent Can Opener Co.**, 102 South Main St., St. Louis, Mo.



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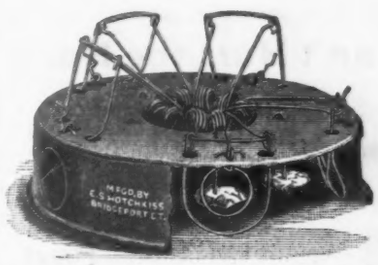
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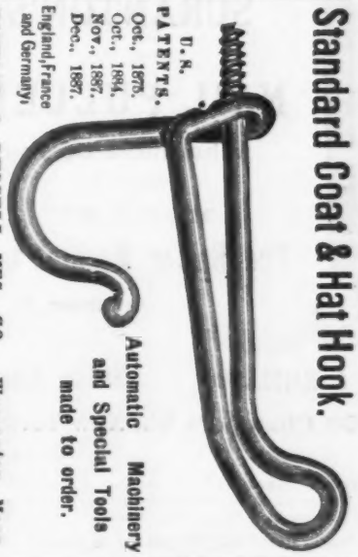
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Is an art. Unlike shelf goods, it cannot be quickly handed out for inspection. Is your storeroom dark in any portion where you keep stoves? A "Daisy" never break stove truck will supply the light needed to show the stove off properly and perhaps affect a sale.

These trucks are far superior to the old fashioned platform, as with them every part of the stove may be examined by the customer. "All you've got to do is push the stove out and talk." Remember they fit any stove. Dealers sell stoves in half the usual time when using them. Try a dozen and see how handy they are.

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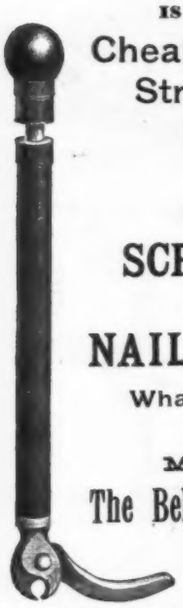
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Don't you need any?

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"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

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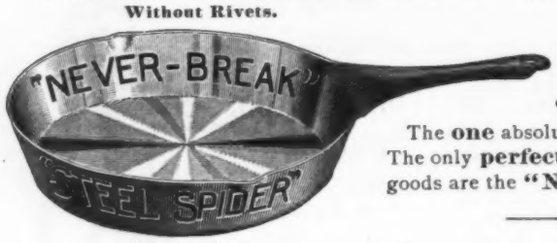
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The only **One Piece** spider with cold handle is the **"Never-Br eak."**

The **one** absolutely **clean** handle.

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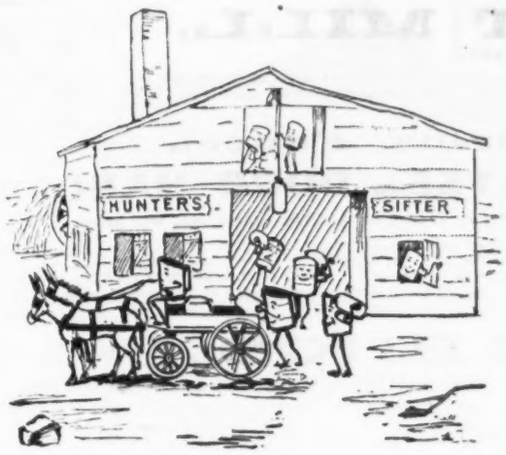


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Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

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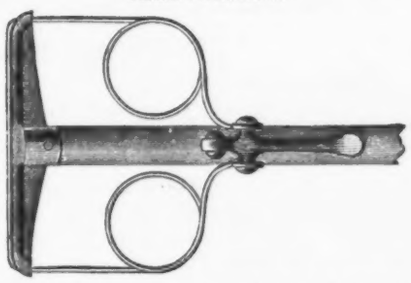
Produced at the mill, while perfectly fine by the time it reaches the consumer, is in a condition of "lumpiness" that is not conducive to the best results in baking. The latter can only be attained by the use of an auxiliary like the famous "Hunter's Sifter." The dealer that will demonstrate or even explain this to his customers, not only benefits his patrons, but himself as well. Write us for information "how."

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The TROJAN MOP STICK.

PATENT PENDING.



We call special attention to our method of lapping the ends of the wire around the arms of the lever. It is there to stay. If as good a Mop Stick is on the market we have never seen or heard of it. Send for Prices.

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Self-Adjustable Clothes Wringer.

Different in principle and design from any Wringer in the market.



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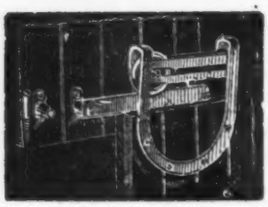
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The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.



Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.



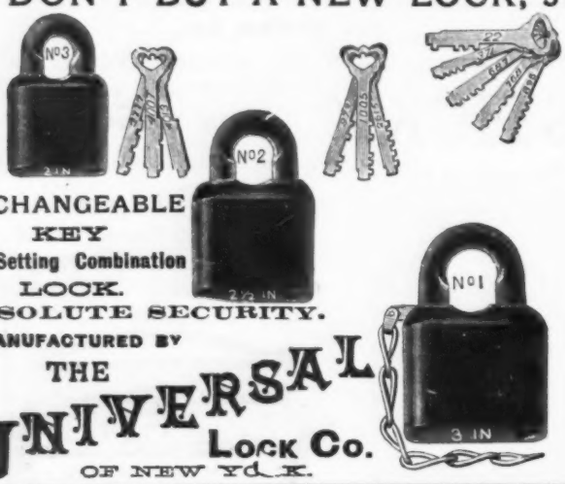
The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps it life, it is by far the most durable. It may be used with any track. It is always in order. LANE'S PATENT TRACK is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

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A CHANGEABLE KEY
Self-Setting Combination LOCK.
ABSOLUTE SECURITY.

MANUFACTURED BY
THE UNIVERSAL Lock Co.
OF NEW YORK.

This lock differs from all others in the fact that it will set itself to any one of 4013 different keys with which the user may choose to lock it. Only the key used in locking will unlock it.

The advantage will naturally become apparent when for any reason whatever the user wishes to change the means of securing his premises, he need only buy a new key. Obviously as many different locks for securing the premises will be available as there are keys in the possession of the holder.

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Extra Keys, 10 cents each.

NOTE.—Keys numbered from 1 to 4013 inclusively.

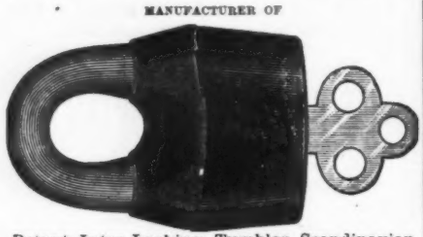
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Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

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CUSTOM HOUSE, PORTLAND, MAINE, July 13, 1890.

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GENTLEMEN: I am glad to learn that your locks are to be adopted by the Treasury Department for the bonded warehouses. The samples from your works sent here last fall were thoroughly tested during the winter and proved satisfactory.

Your obedient servant,

(Signed) CHAS. W. ROBERTS, Supt. of Warehouses.

PATENT PERFECTION PADLOCK,
MANUFACTURED BY
AMES SWORD CO., - Chicopee, Mass., U. S. A.

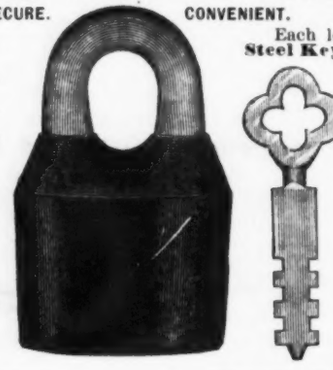
Self-Locking Scandinavian Padlocks.

NEW LINE. SECURE. CONVENIENT. DURABLE

In compliance with popular demands for a lower priced line of padlocks to work on our self-locking principle, we are now making a

Special, Cheap, New Line.

Self-Locking, with Maroon Finish and Polished Shackles



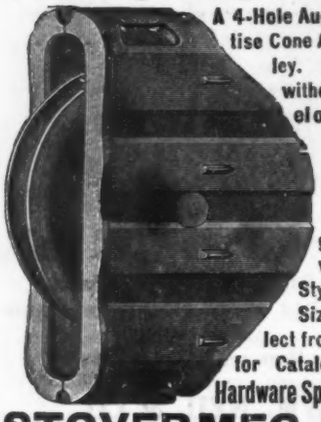
Each lock has two handsome **Cast Steel Keys** of unique design and light in weight, as shown on accompanying cut. This line is made especially for export and cheap trade.

Brass, Bronze Mal. Iron and Nickel Plated Self-Locking Scandinavian Padlocks.

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Manufacturers,
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IDEAL SASH PULLEY.



A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

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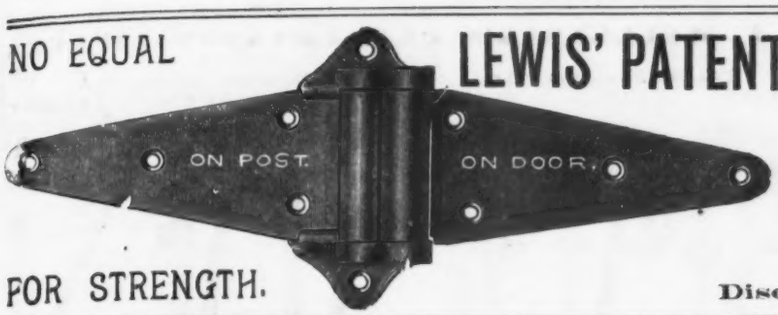


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"TRIUMPH" WIRE CHAINS, Halter Chains, Dog Chains, Kennel Chains, Coil Chains, &c.; the most perfect Chains made for their various purposes; made of **Steel Wire** and possess great strength; much lighter than sheet metal or welded chains; no sharp edges; do not kink; no bad welds; in fact the most saleable and serviceable chains the trade can handle. Also "Monarch" Sash Chain, Plumbers' Safety Chains, &c. Send for catalogue.

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn.

NO EQUAL



FOR STRENGTH.

LEWIS' PATENT STRAP AND T HINGES

—MANUFACTURED BY—

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Columbus, Ohio.

Discounts mailed on application.



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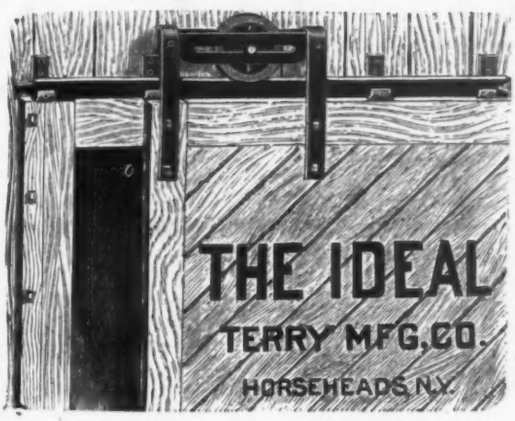
STEEL HANGER AND RAIL.

Derailment Impossible. Occupies least possible space.

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Sales Agents: Cutter, Woodrough & Co., Chicago, Ill., Hoen & Von Kappf, Baltimore, Md.



THE IDEAL

STEEL

Anti-Friction Hanger.

Sure to Please the Trade.

Works VERY EASY, is STRONG and combines ALL the BEST Features of an Anti-Friction Hanger.

4-in. Wheel, 6-ft. Run, $15 per doz. pairs.
5-in. " 10-ft. " 18 " " "

Would be glad to quote you Prices.

TERRY MFG. CO., Horseheads, Chemung Co., N. Y.



The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

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READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

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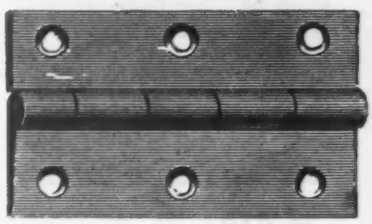
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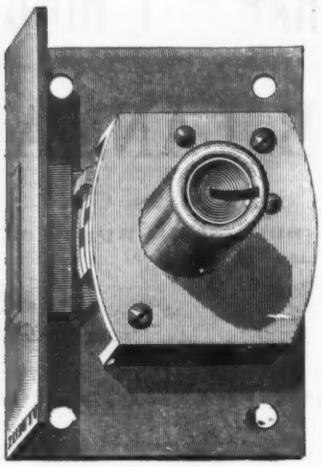
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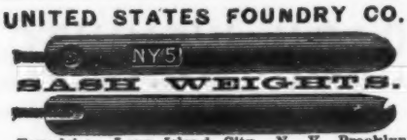
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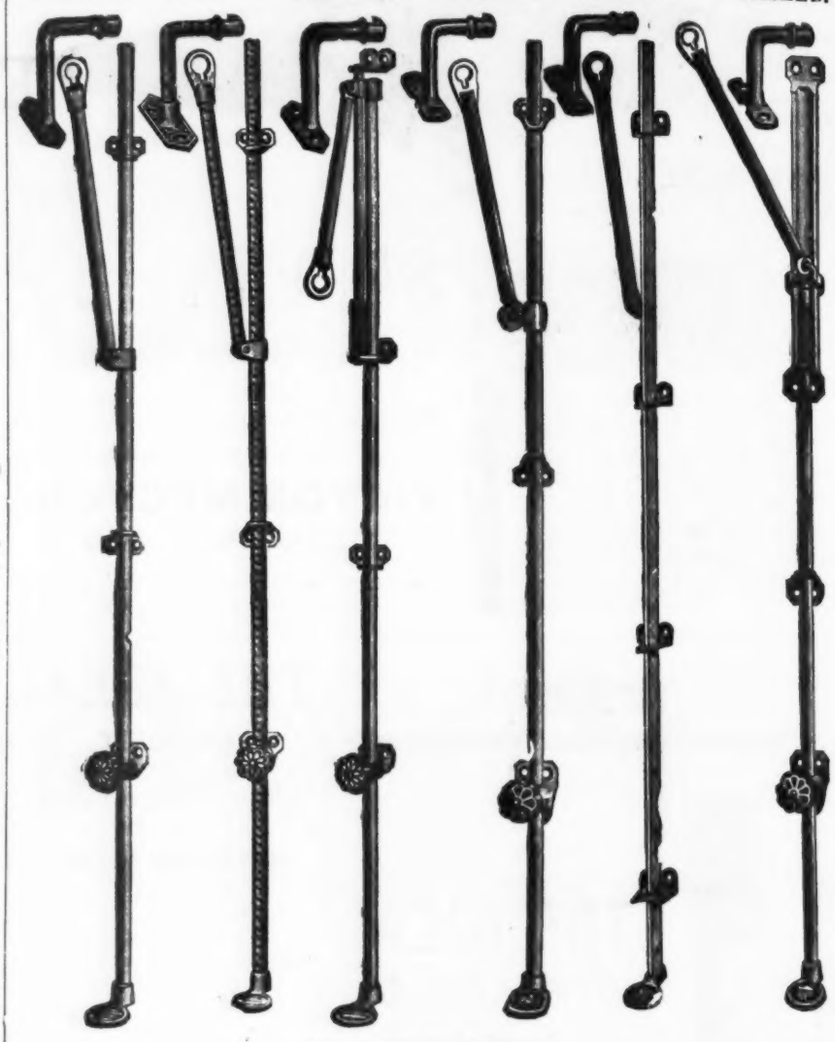


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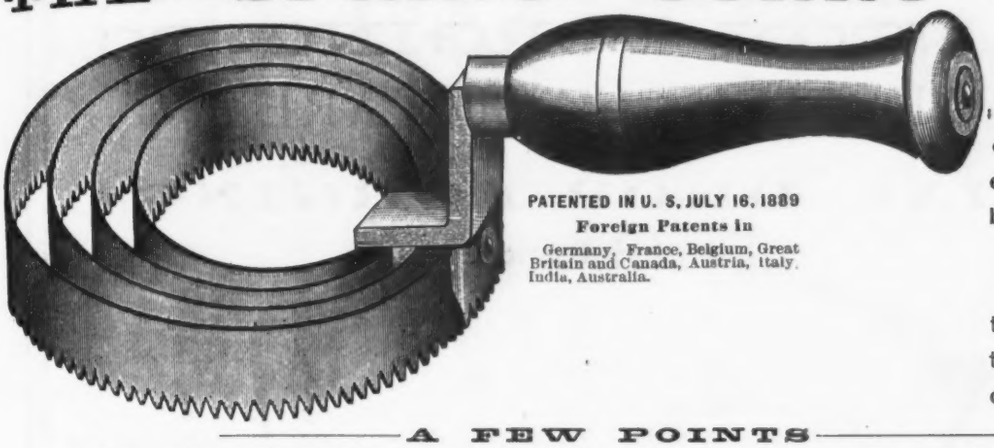
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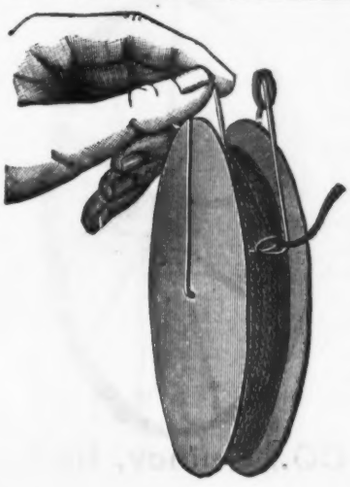
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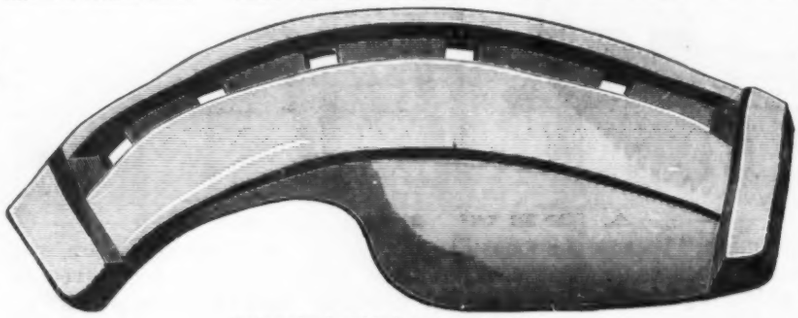
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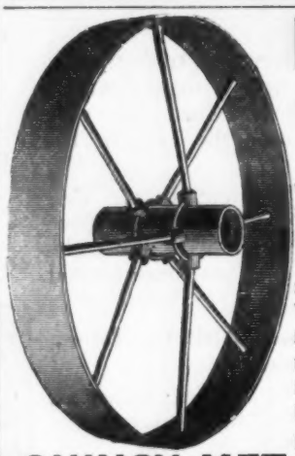
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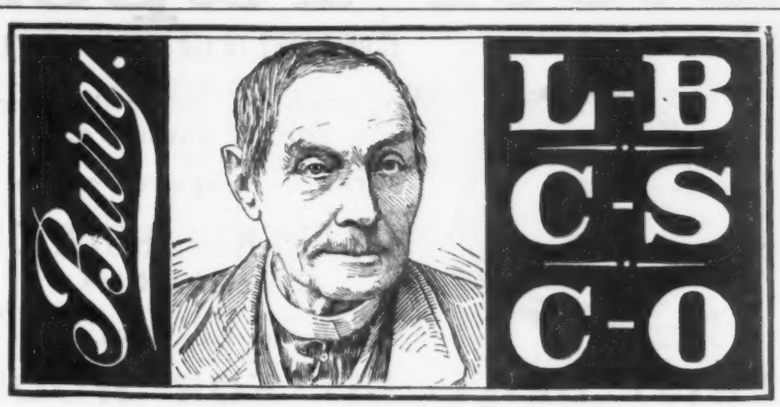


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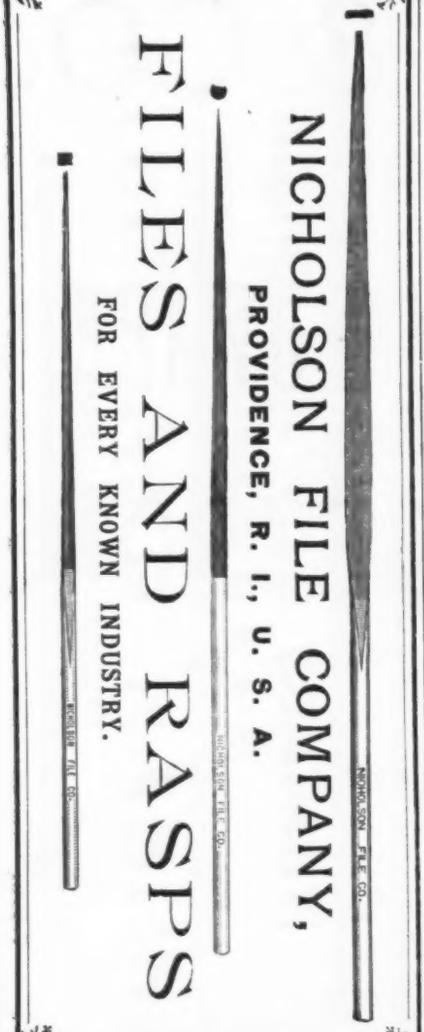
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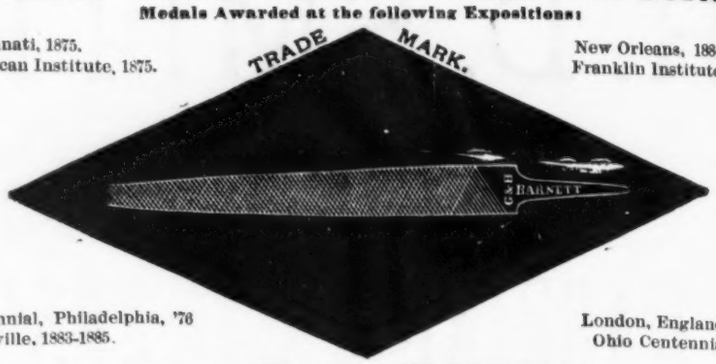
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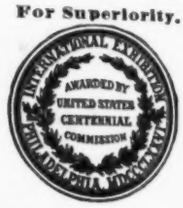
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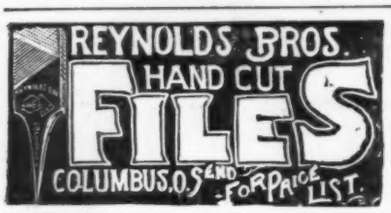
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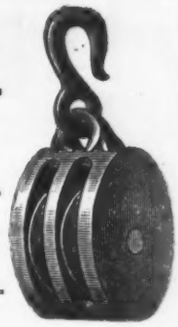
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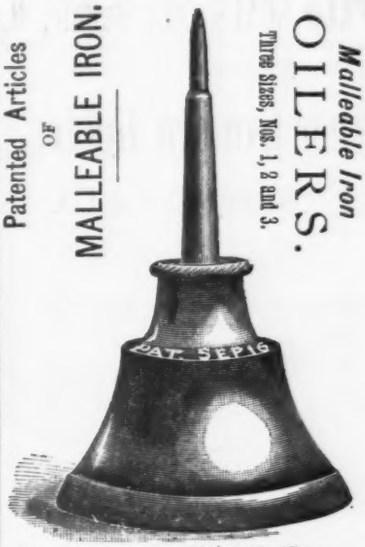
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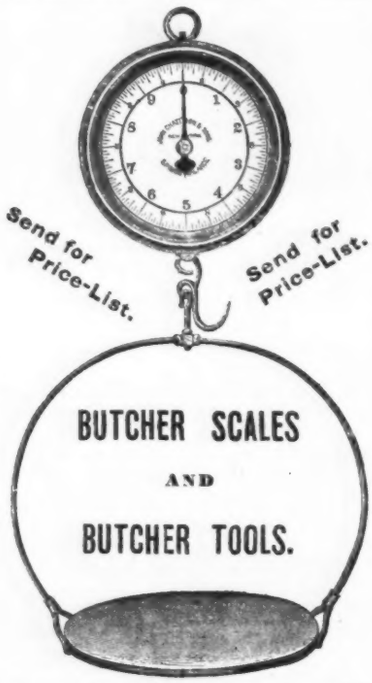
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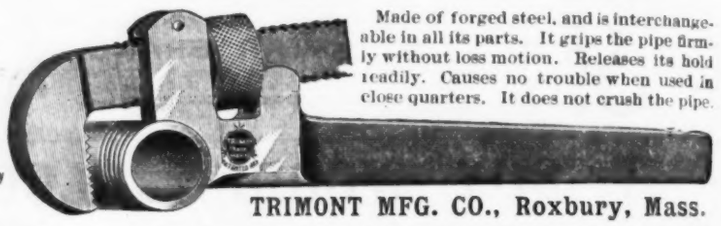
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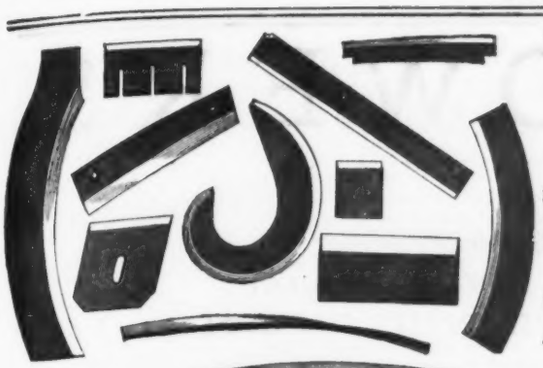
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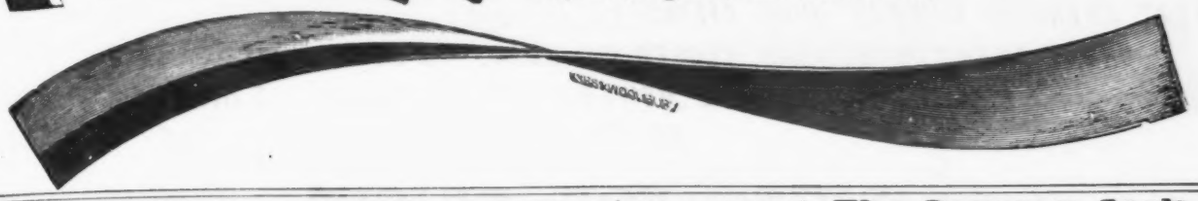
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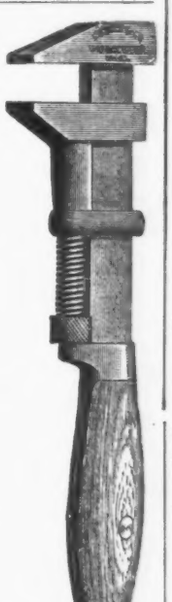
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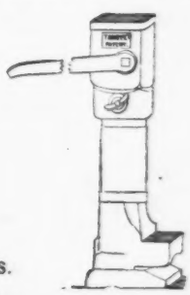
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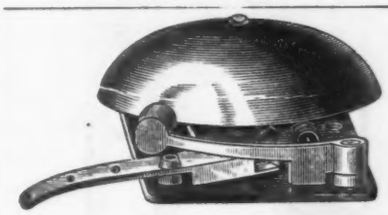


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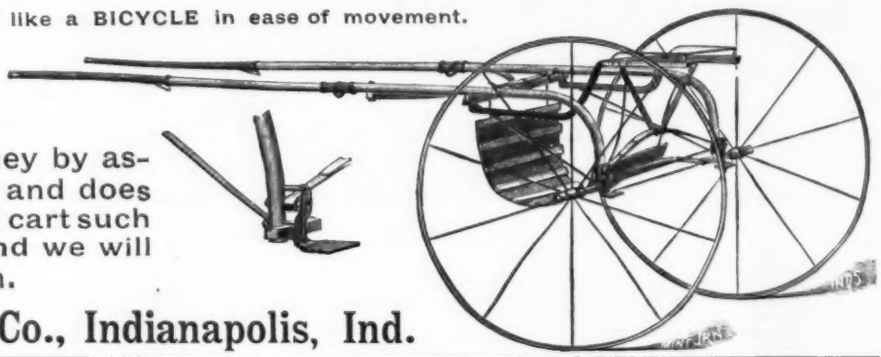
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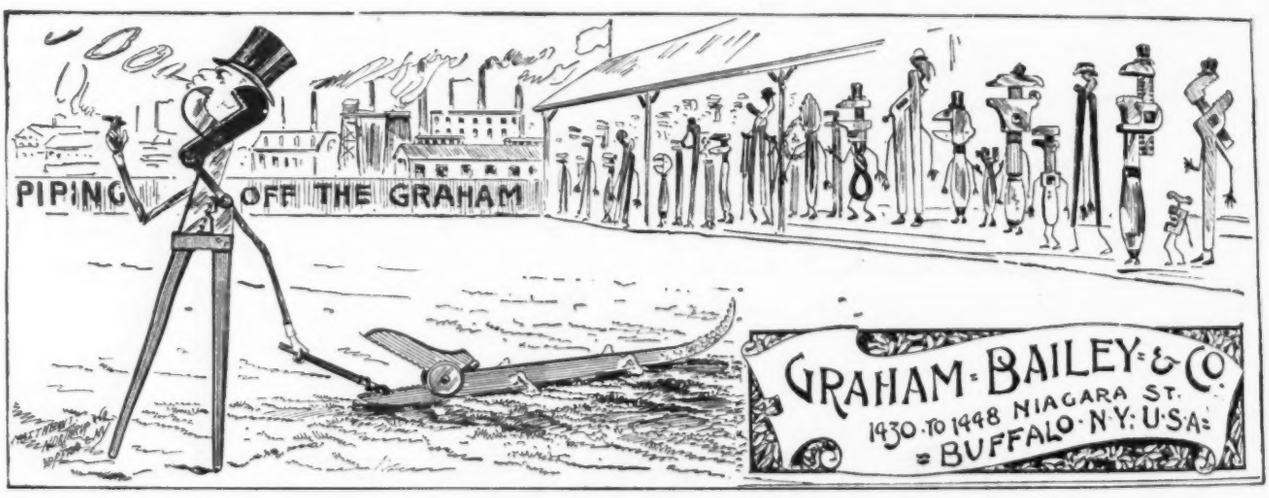
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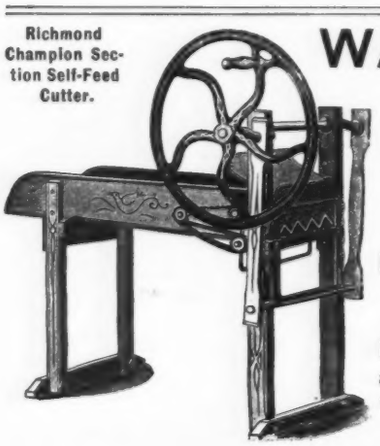
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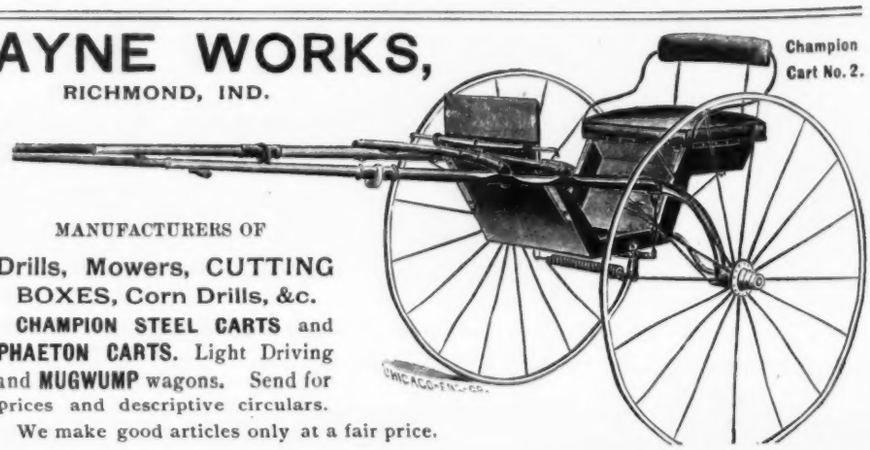
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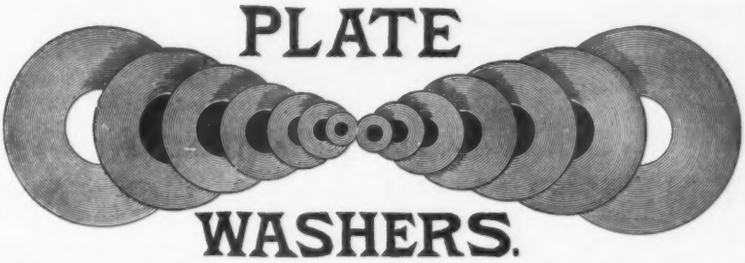
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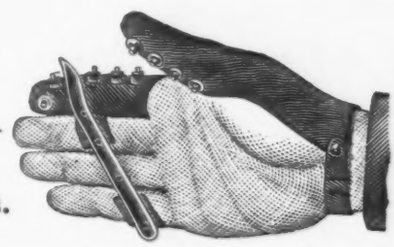
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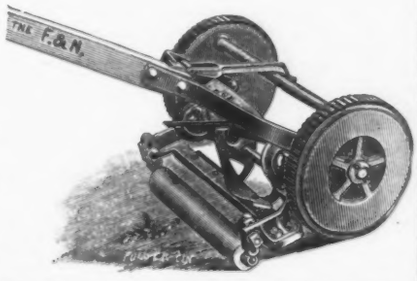
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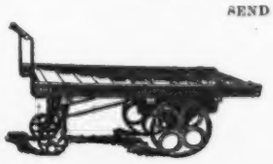


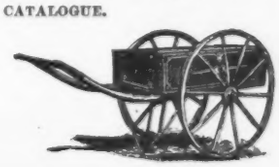
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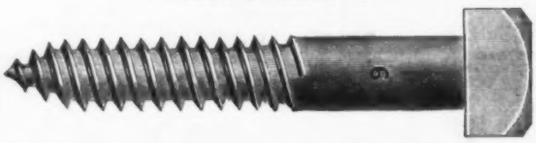
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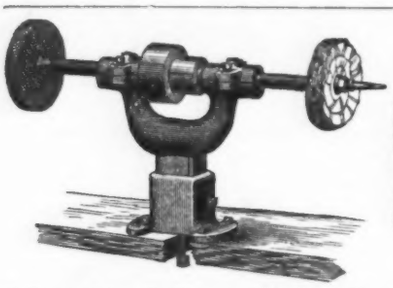
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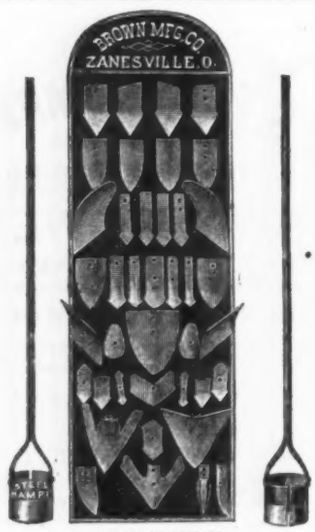


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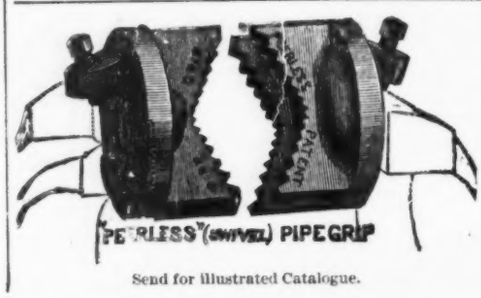
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Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Janney, M. P., Pottstown, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morris, Tasker & Co., 224 South Third Street, Phila.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Moov, Cleveland, O.
Schulte, Lohoff & Co., Evansville, Ind.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Sharon Steel Castings Co., Sharon, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
St. Louis Steel Fdry Co., St. Louis, Mo.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron Wks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Thos. D. West F'dry Co., Cleveland, O.
Watkins Chilled Plow Co., Watkins, N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Hendryx, Andrew B. & Co., New Haven, Conn.

Chemicals and Apparatus.
Eimer & Amend, 205 Third ave., N. Y.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited), 4 and 6 Warren, N. Y.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.
Samson Cordage Works, Boston, Mass.

Cork Pullers.
Greely, B. J., Boston, Mass.
Meriden Malleable Iron Co., Meriden, Conn.

Corn Shellers.
Blair, E., Bucyrus, Ohio.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Cinn., O.
Jersey City Galvanizing Co., Jersey City, N. J.
Miller, Jas. A. & Bro., Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Cottages, Portable.
Iron Cottage Co., Grand Rapids, Mich.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N.Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Foster Bros., Fulton, N. Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
Southington Cutlery Co., Southington, Conn.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.
Union Hdw. Co., Torrington, Conn.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horsehead, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wells Mch. Works, Fostoria, Ohio.
Wiley & Russell Mfg. Co., Greenfield Mass.
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Foster Bros., Fulton, N. Y.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevators, *Makers of.*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Wheels.
Diamond Mach. Co., Providence, R. I.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
The Tanite Co., Stroudburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Harrisburg Car Mfg. Co., Harrisburg, Pa.
Lane, Bodley & Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Engraving and Printing.
Gies & Co., Buffalo, N. Y.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless. Dunn & Alder, 97 Chamber N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.
Warner, H. A. & A. H., Bristol, Conn.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.
Reynolds Bros., Columbus, Ohio.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick. *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Pope, C. E. & Bro., Pittsburgh, Pa.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

(See Alphabetical Index, Page 104.)

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fruit Press.
Paine, Diehl & Co., Philadelphia, Pa.

Fuel Burner.
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
LePage Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.

Grinding Mills.
Hill, A. M., New Haven, Conn.

Grinding and Polishing Mchy.
Diamond Mach. Co., Providence R. I.
Star Machine Co., Philadelphia, Pa.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hames.
Wilcox, Wm. Mfg. Co., Middletown, Ct,

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Salomon, L., 118 Chambers, New York.
Surpless, Dunn & Alder, 97 Chambers, N. Y.
Tommins & Adams, 116 Chambers, N.Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt,

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Lewis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan. Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co, 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironware, Galvanized.
Hill, Jas. Mfg. Co., Providence, R. I.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
"Champion"
Enterprise Mfg. Co., Philadelphia, Pa.
F. & N. Lawn Mower Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
"Champion."

Lawn Sprinklers.
McGowan, J. H. Co., Cincinnati, O.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moers, E. M., Cincinnati, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis
National Machinery Co., Tiffin Ohio.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Norfolk & Western R. R. Co.
Portland, Oregon.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y,
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Mop Sticks.
Peabody & Parks, Troy, N. Y.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.
Graham, John H. & Co., 113 Chambers St., N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mcl.. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass,

Oil Stones.
Chailiaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Oil Tanks.
Nell, Wm. & Co., Chicago, Ill.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Haik & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris, Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass.
"Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Coverings.
National Pulley Covering Co., Baltimore, Md.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Columbiana Pump & Machine Co., Columbiana, Ohio
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

See Alphabetical Index, Page 104.)

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Schwarzenberg Bros. & Co.,Cleveland,O
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Creamer & Scott Co., Indianapolis, Ind.
Parry Mfg. Co., Indianapolis, Ind.
Wayne Works, Richmond, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Thompson Mfg. Co., Cleveland, O.

Rules, *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass,
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Decatur Coffin Co., Decatur, Ill.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hardware Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Peck & Snyder, 124 Nassau, N. Y.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Fittings.
Kuhn Bros., Dayton, Ohio.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton. N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa. Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co!, Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Butts & Ordway, Boston, Mass.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown. R. H. & Co., New Haven, Conn.
Cincinnati Tool Co., Cincinnati, Ohio.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Barlass Bros., Janesville, Wis.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.
Todd, H. B, Meriden, Conn.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.
Riehle Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.
Sherwood Mfg. Co., Buffalo, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y.
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Colby Hdw. & Electric Co., Chicago, Ill
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Mason Iron Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Washing Machines.
Wayne, Anthony Mfg. Co., Ft. Wayne, Ind.

Water Motors.
Belknap Motor Co., Portland, Me.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty,
Sweetser, W. A. Brockton, Mass.

Wire Nails.
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Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.
Trufant, W. E., Whitman, Mass.
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Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
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Bemis & Call Hardware & Tool Co. Springfield Mass.
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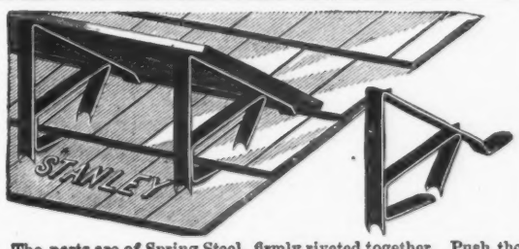
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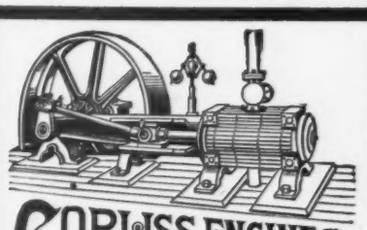
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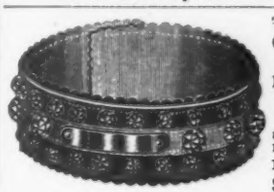
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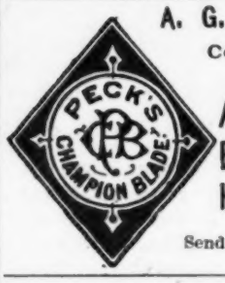
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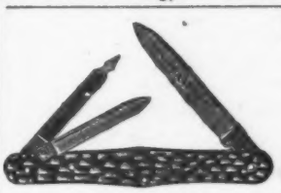
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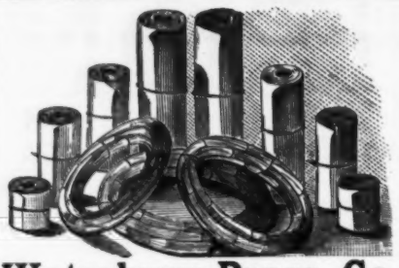
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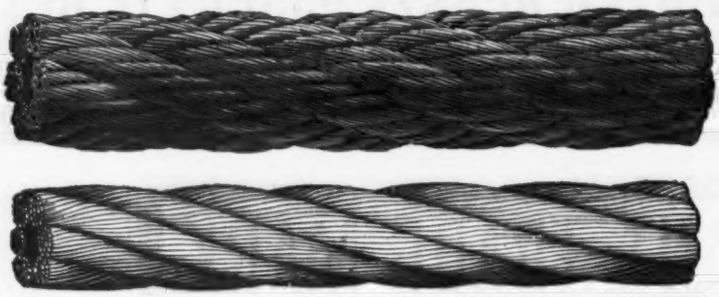
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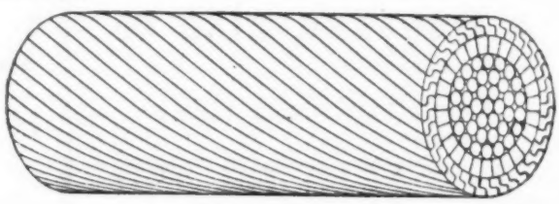
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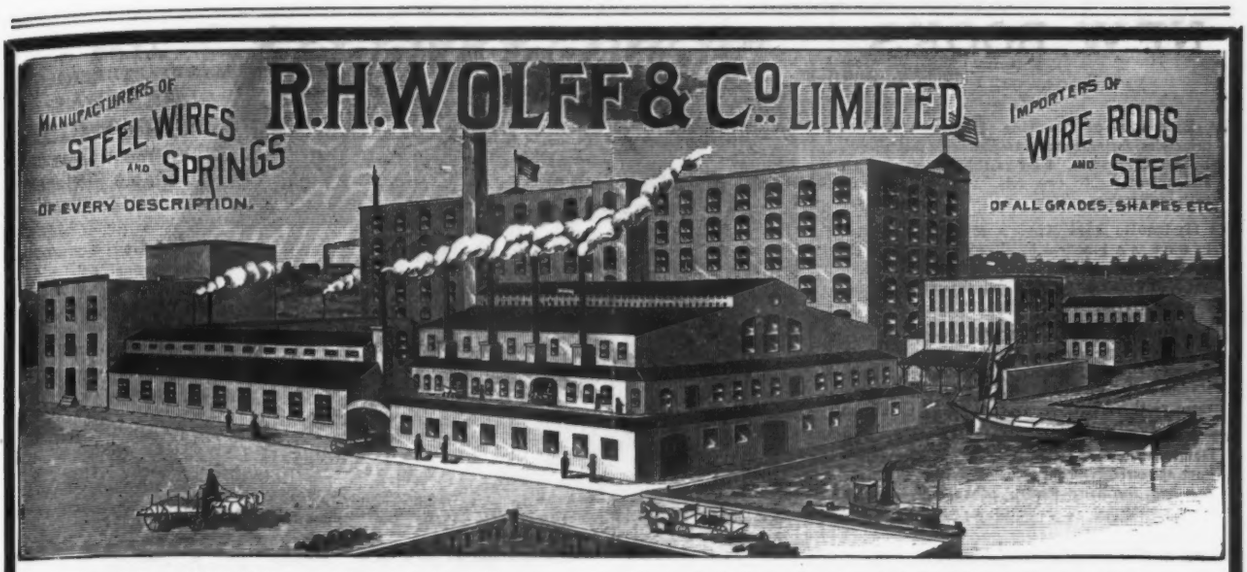
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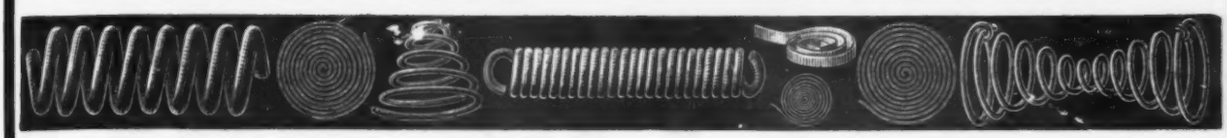
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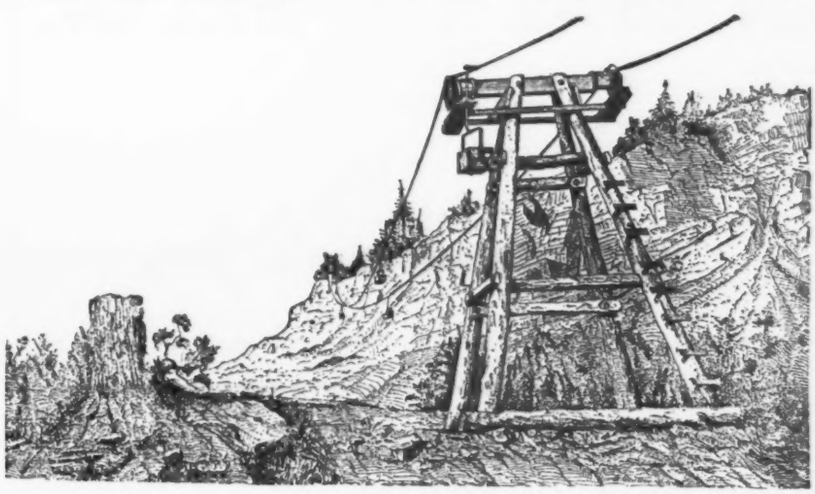
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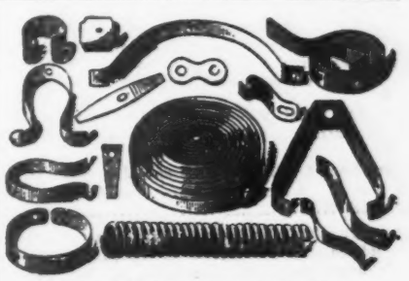
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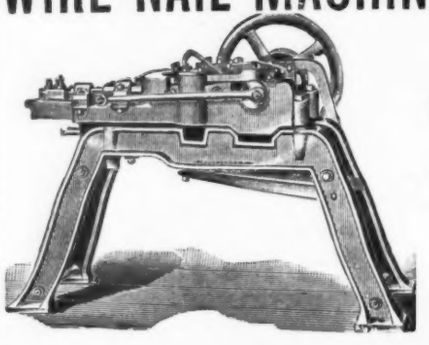
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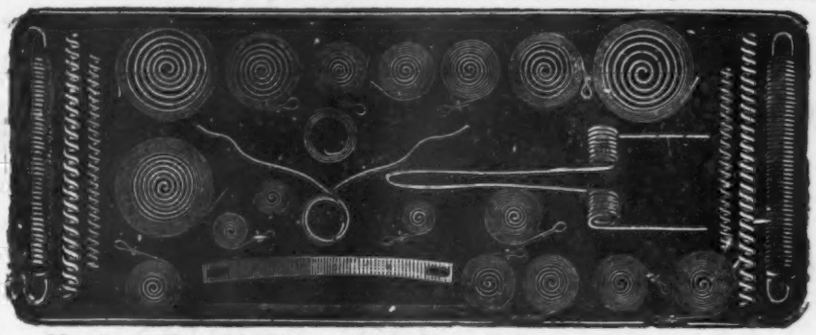
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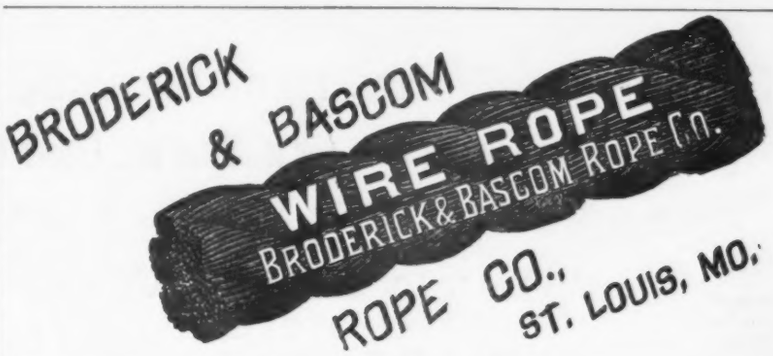
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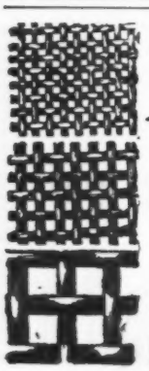
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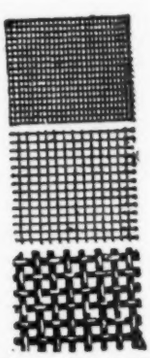
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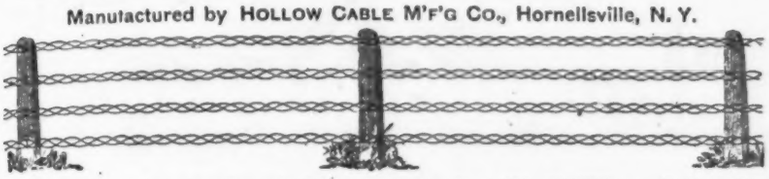
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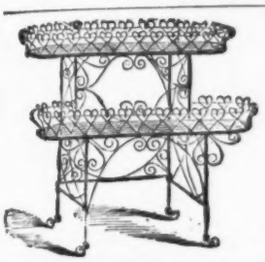


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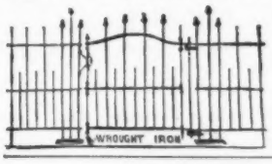
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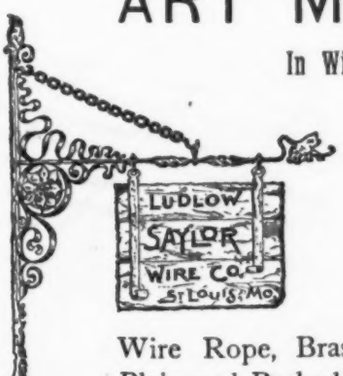
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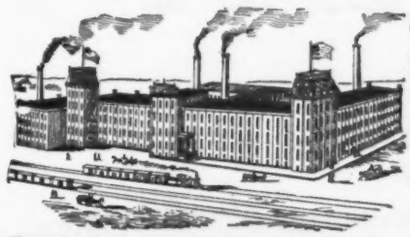
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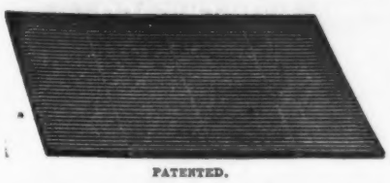
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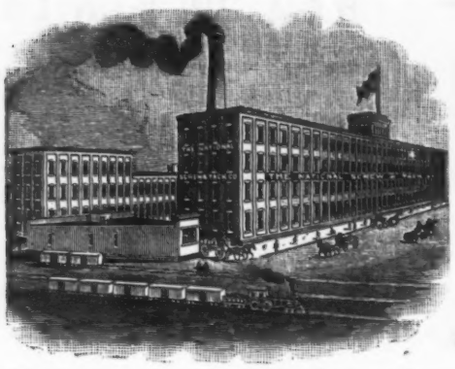
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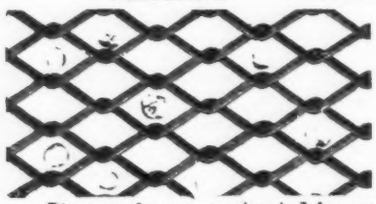
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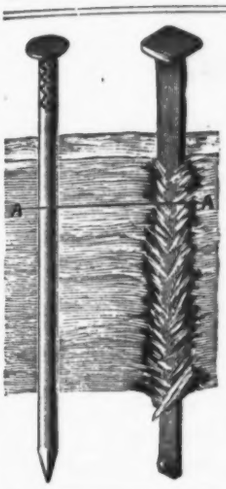
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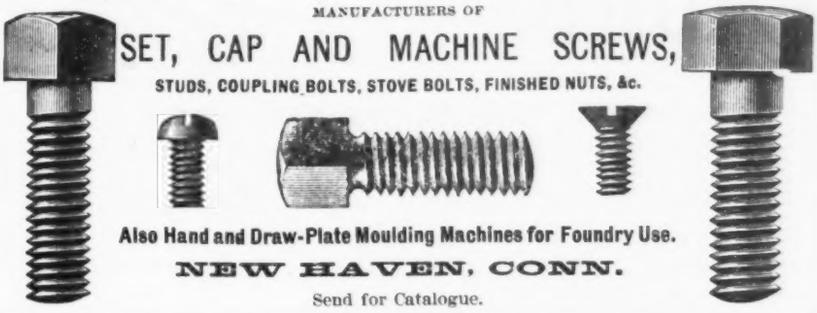
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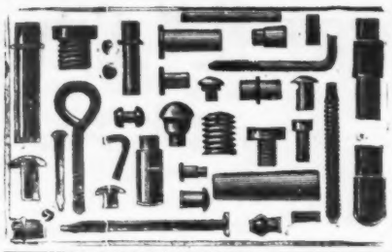
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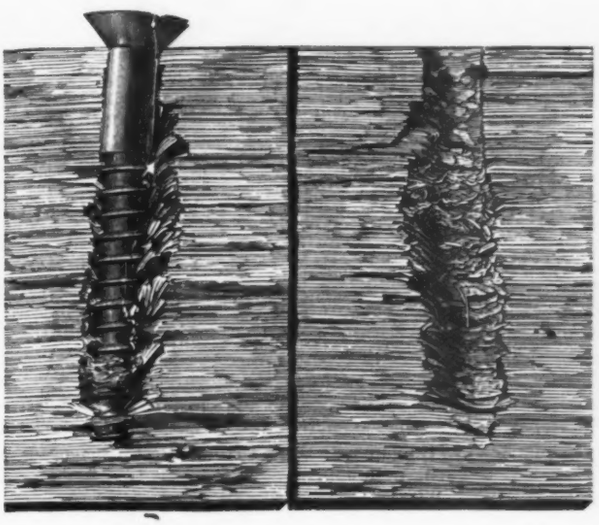
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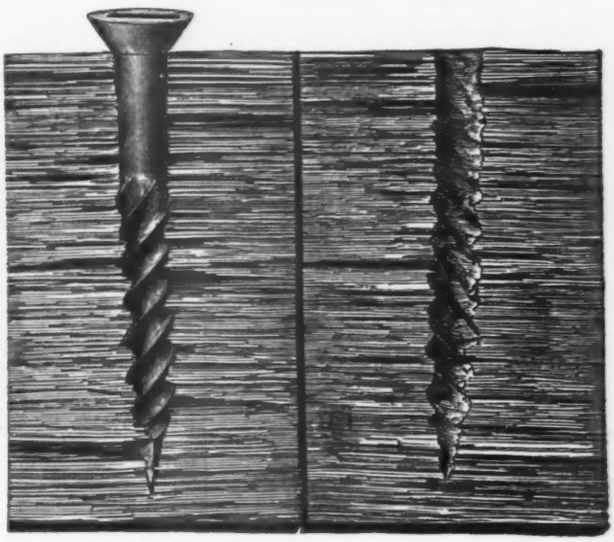
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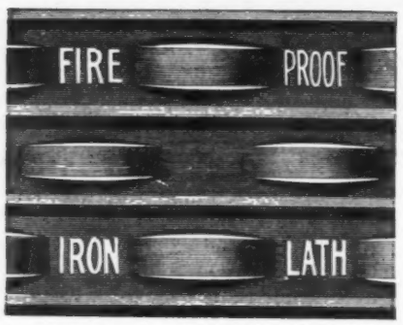
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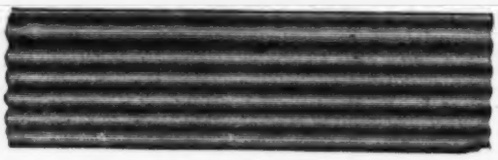
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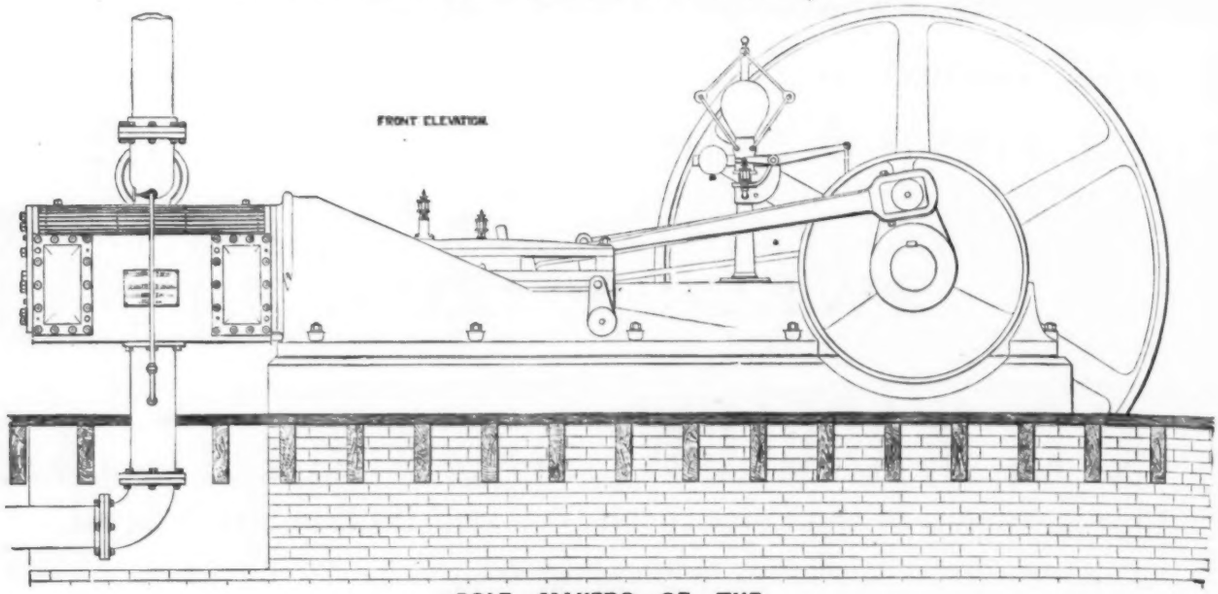
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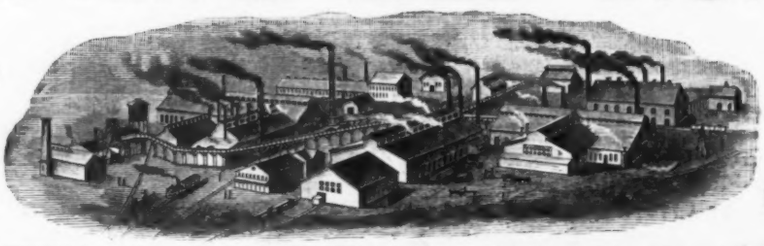
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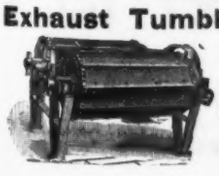
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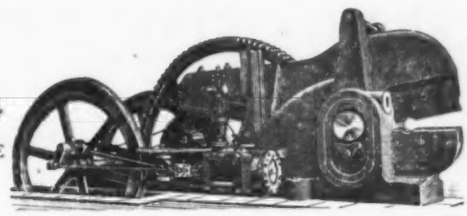
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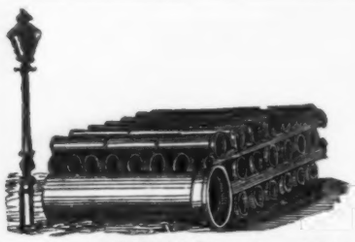
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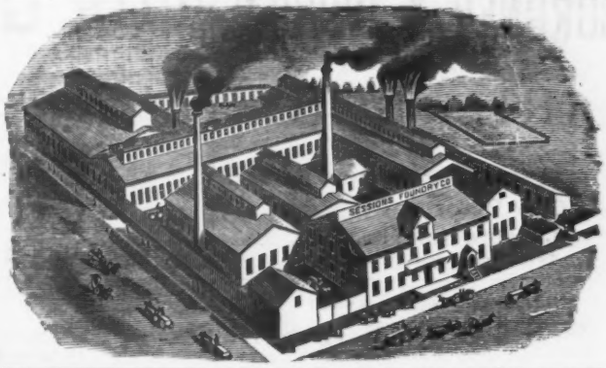
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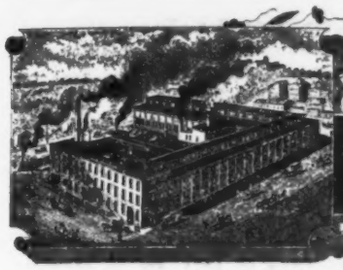
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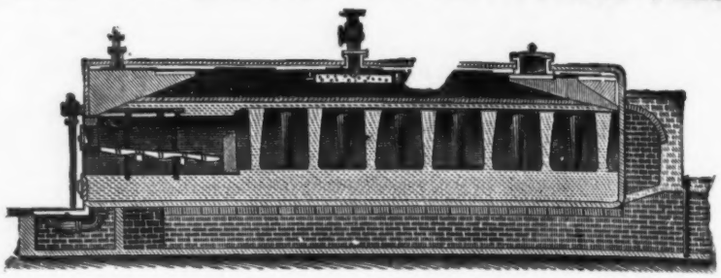
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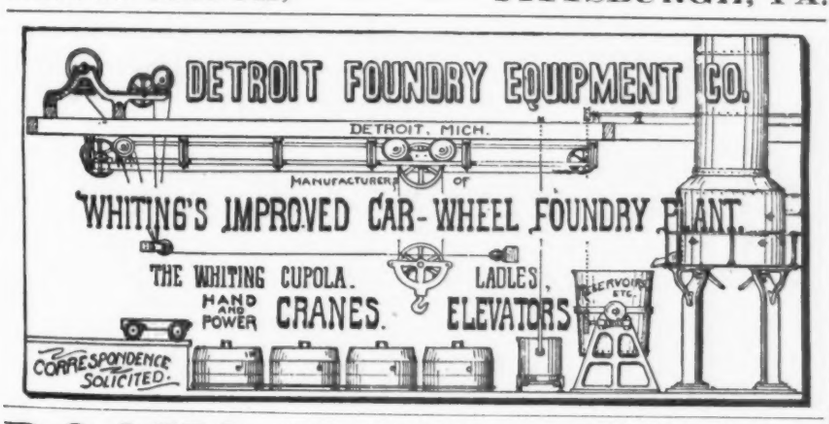
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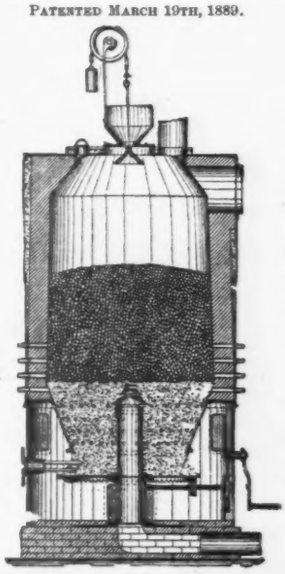
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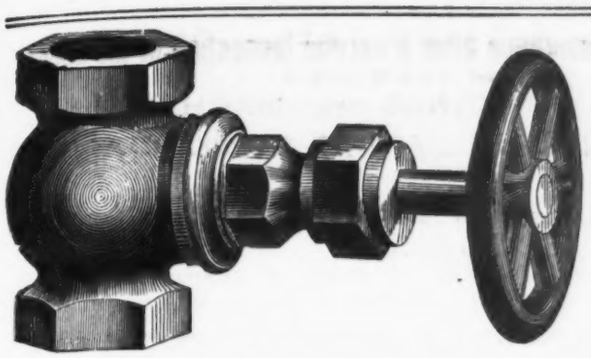
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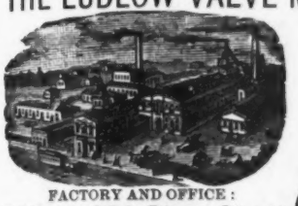
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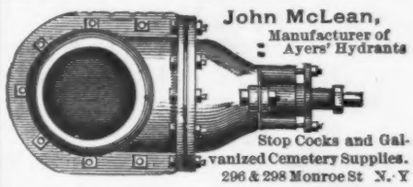
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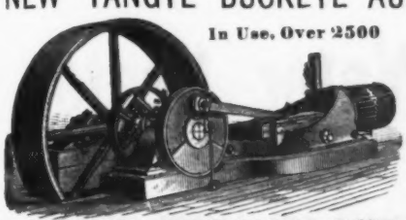
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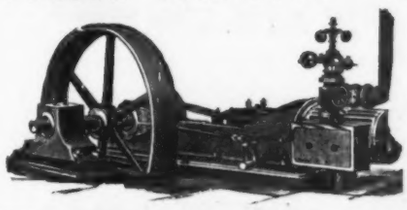


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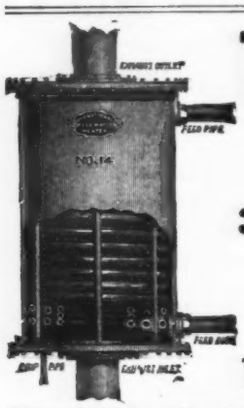
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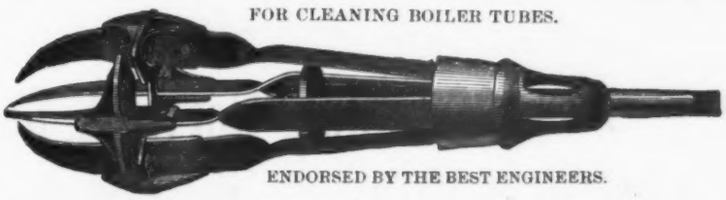
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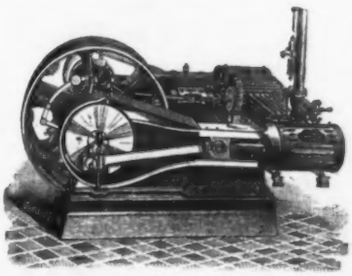


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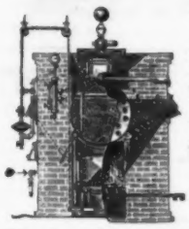
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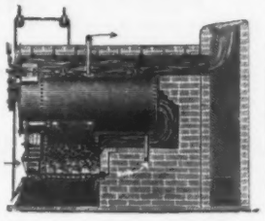
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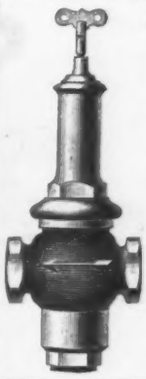
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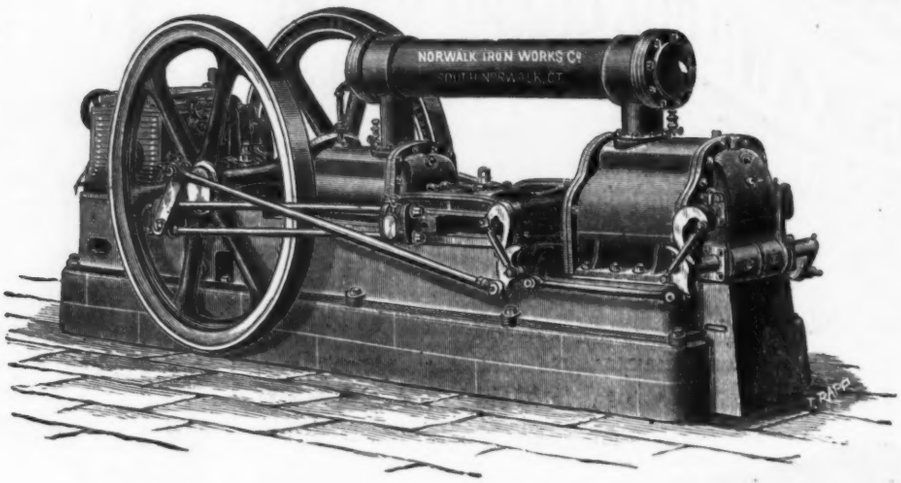
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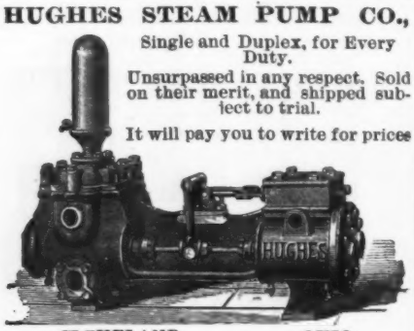
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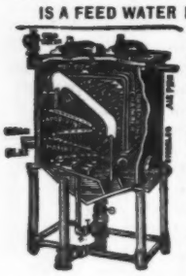


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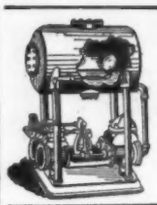


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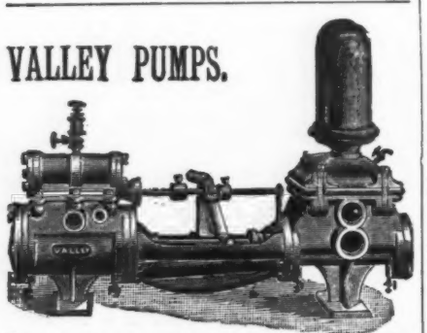
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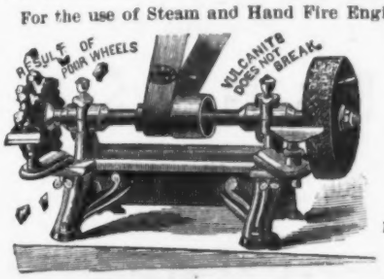
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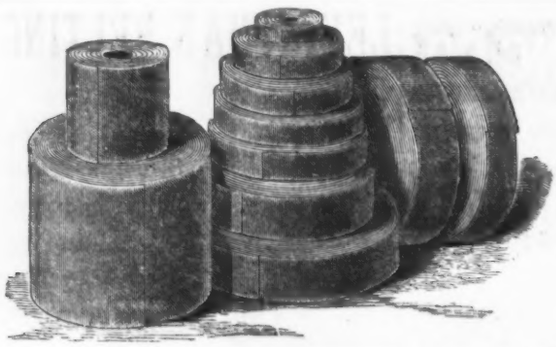
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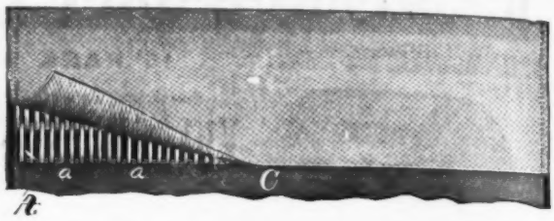
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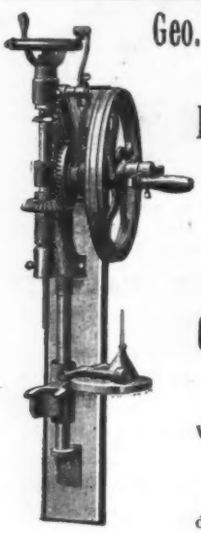
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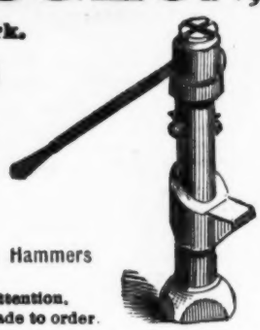
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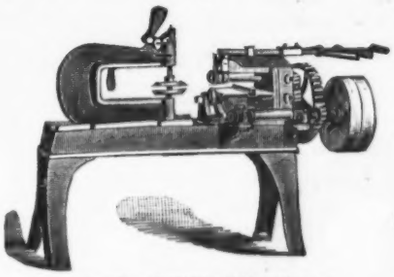
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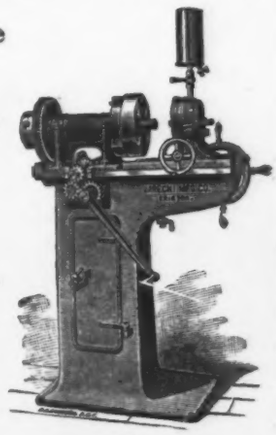
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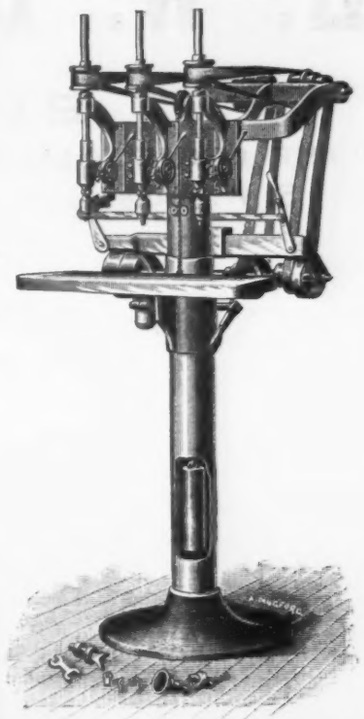
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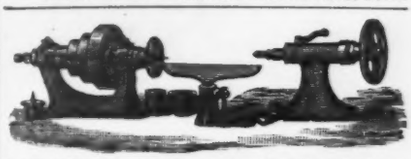
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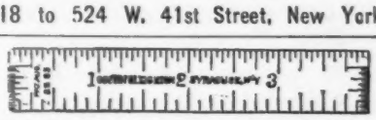


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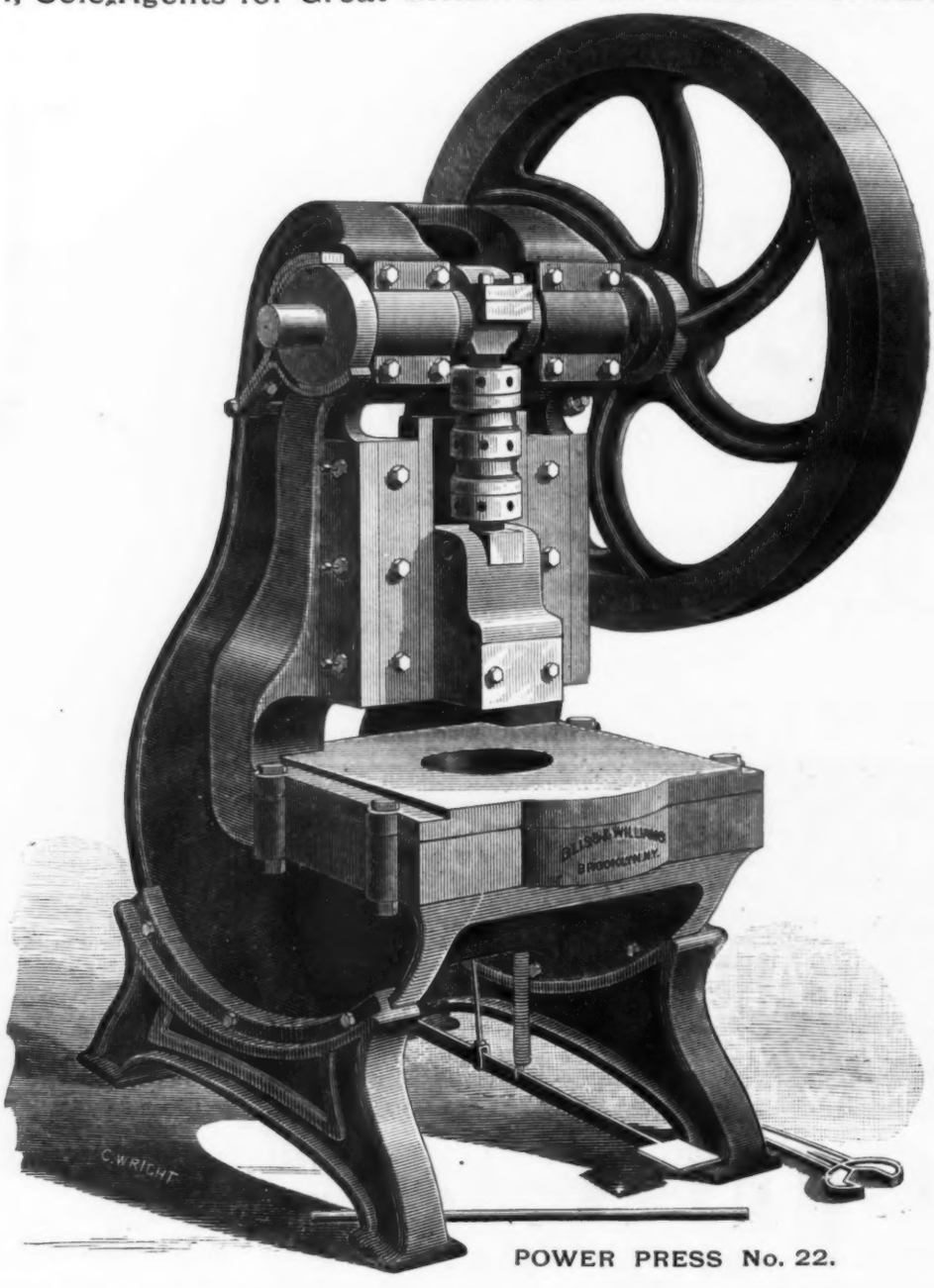
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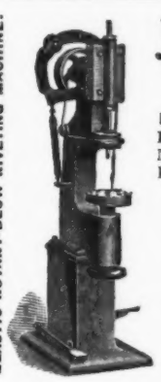
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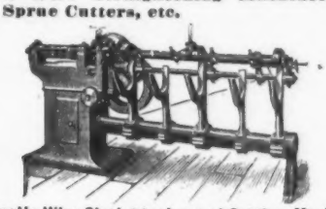


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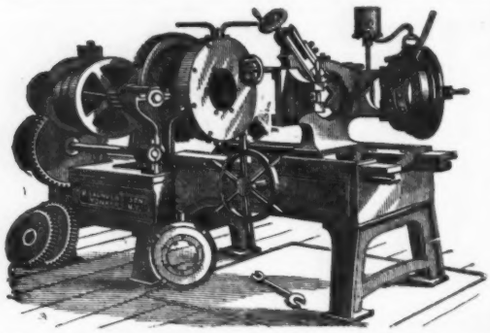


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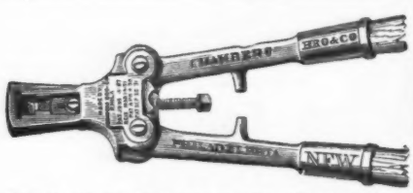


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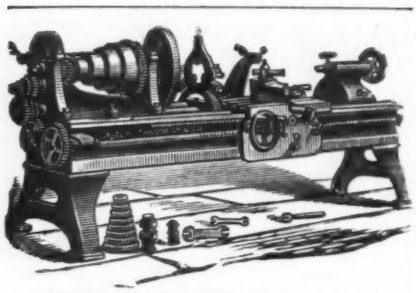
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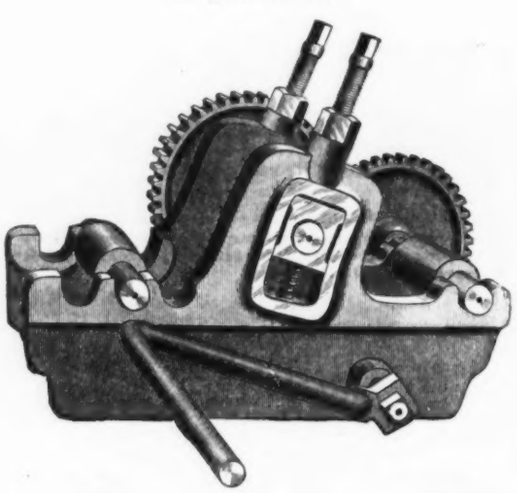
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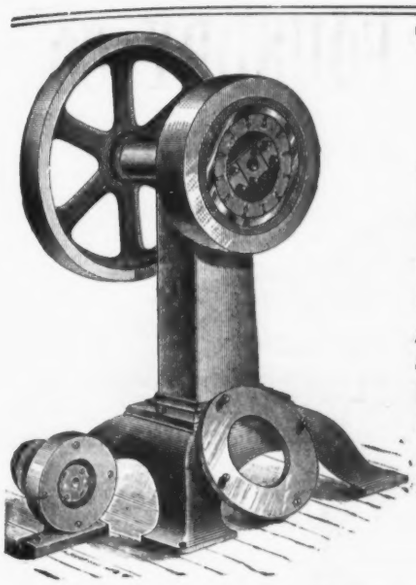


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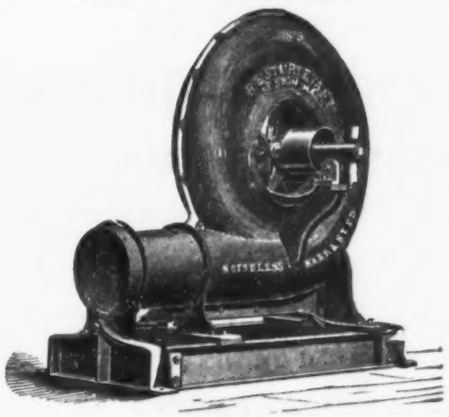
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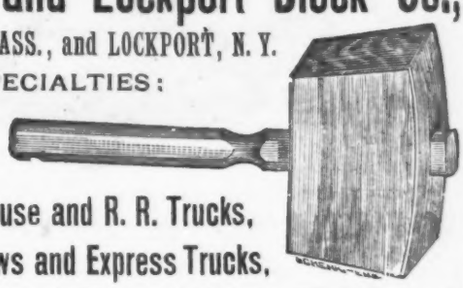
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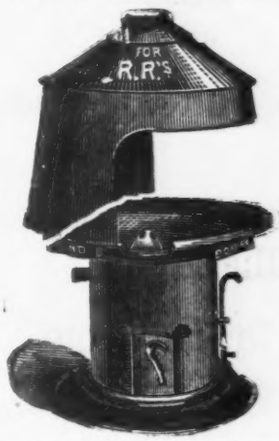
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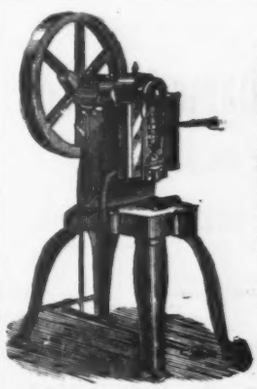
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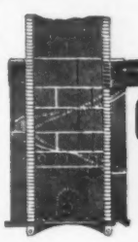
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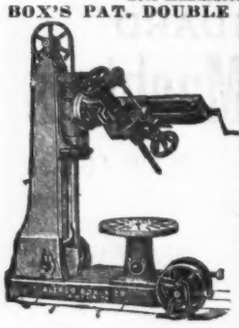
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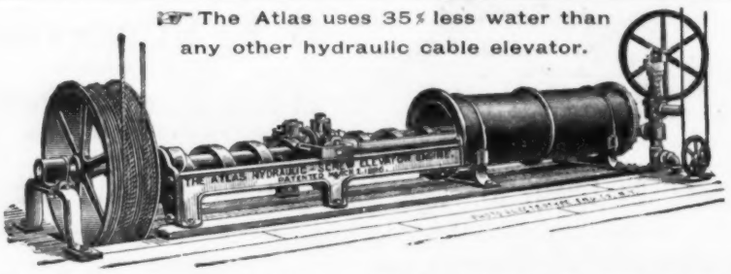
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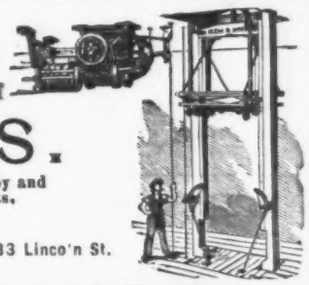
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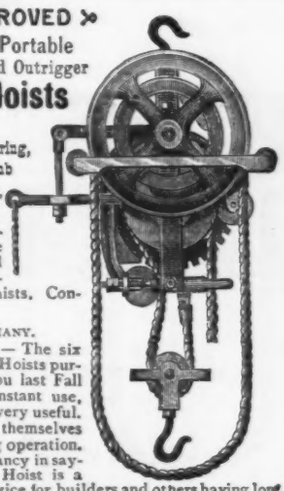
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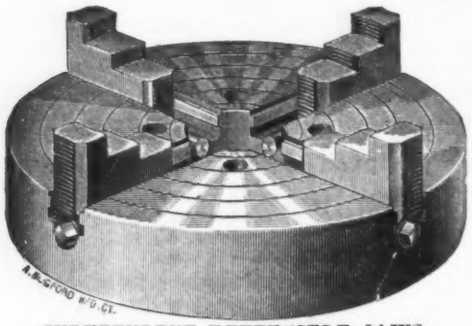
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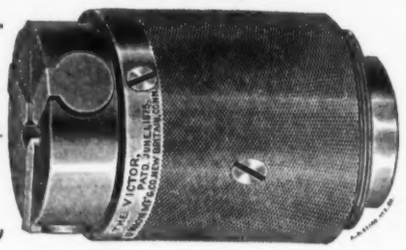
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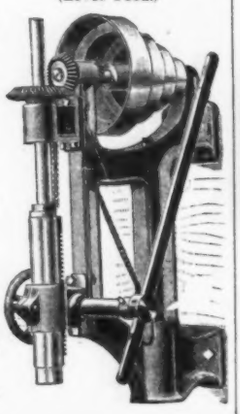
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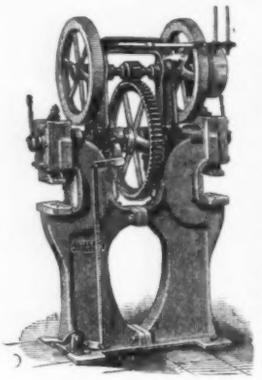


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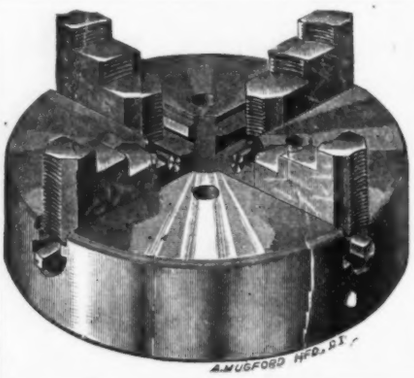
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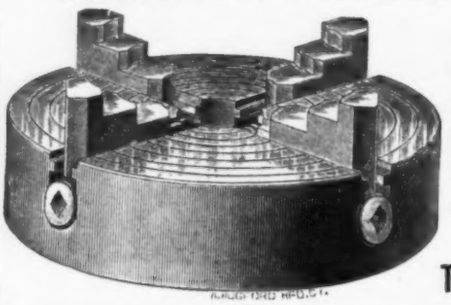


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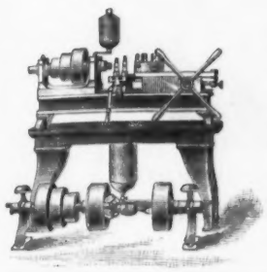
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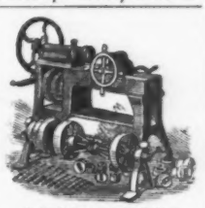
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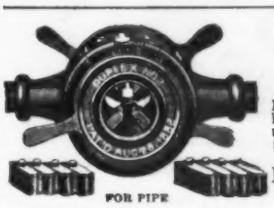
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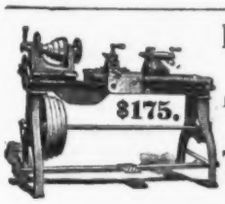
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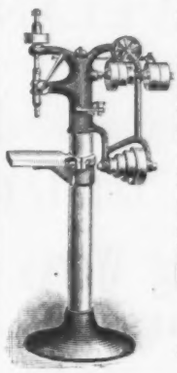
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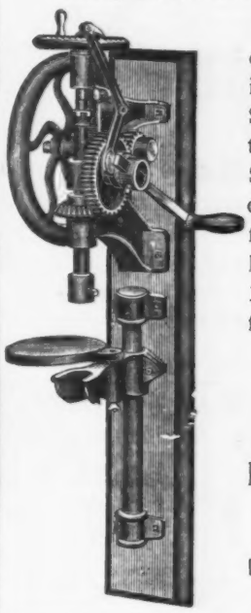
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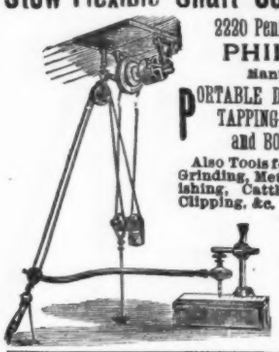


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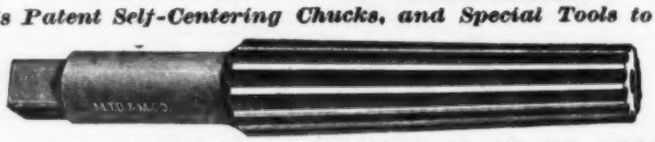
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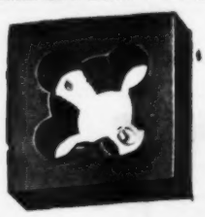


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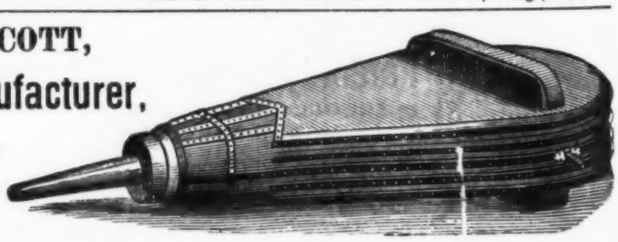
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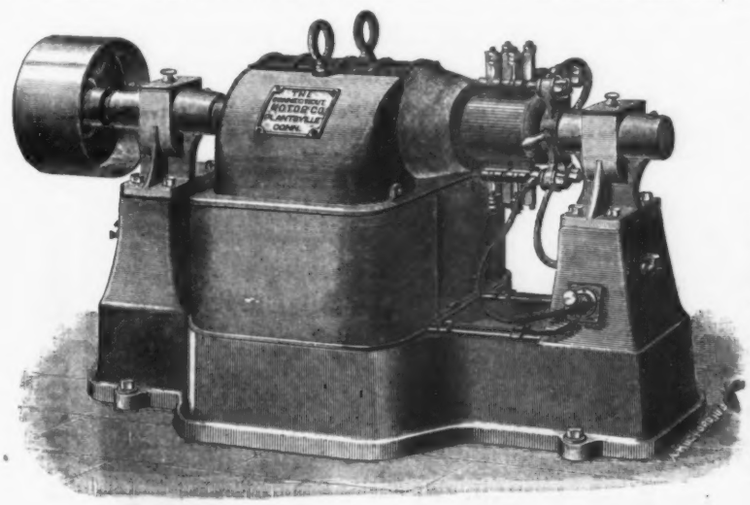
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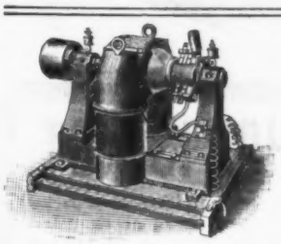
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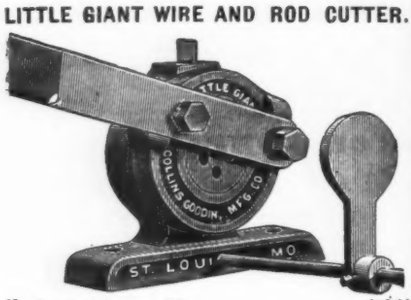
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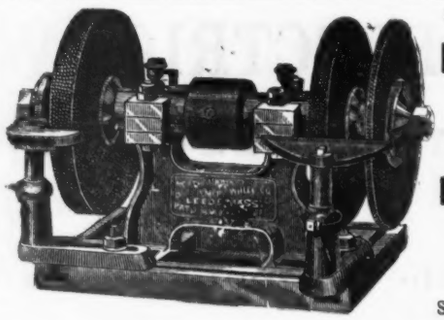


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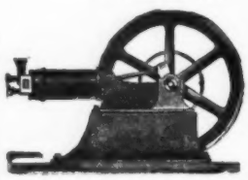
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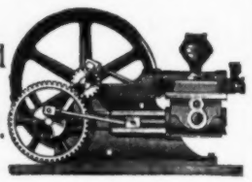


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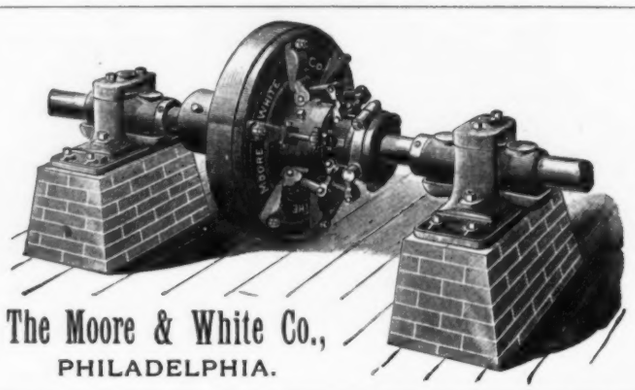
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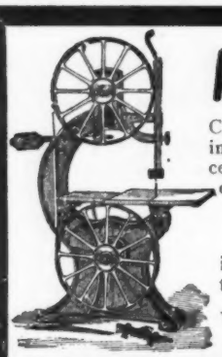
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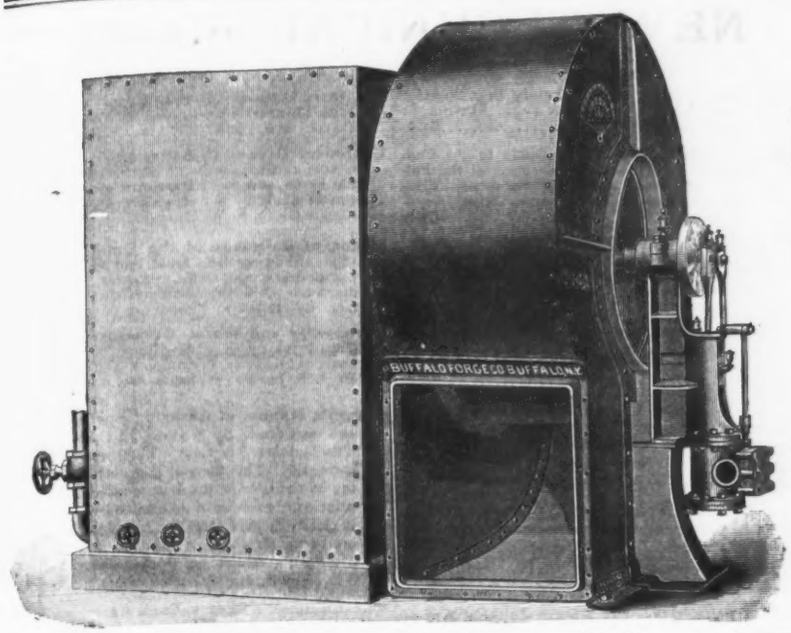
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One Small Atmospheric Hammer.
One 6 H.-P. Portable Engine and Boiler, on wheels.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers
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One 7½ in. x 7 in. x 10 in. Worthington Duplex Pump.

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1 Sellers Planer, 8 ft. 38 in. x 36 in. double head.
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1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 8 ft. 30 in. x 30 in.
1 20 ft. bed 72 in. Heavy Lathe
1 16 ft. bed 60-in. Engine Lathe.
1 11-ft. bed 19-in. Engine Lathe.
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Corliss Engine, 22 in. x 60 in.
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One 100 H.-P. R. R. Locomotive Boiler, good for 100 lbs. steam.
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All in perfect order. New Boilers and Engines of all sizes. S. L. WILSON,
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Engines, Boilers, Rolls and the entire machinery of the plant, all of the latest and best construction, separately or together. Send for catalogue.

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1 " " " 7 ft. " "
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One 16 x 42 Babcock & Wilcox Engine.
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Guaranteed to be well made.

Net cash price each, $400.

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1 20 H.-P. Return Tubular Boiler.
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All of the above are in first-class condition and good working order.

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1 43 in. x 12 ft. "
1 Heavy Power Punch.
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1 31 in. x 16 ft. " "
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1 Two-Spindle Profiling Machine.
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24 8d Nail Machines and Patterns.

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1 Large Car Mortiser and Borer.
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Berryman Heater, 10 in. exhaust.
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Two 18 x 28 Watertown Auto. Engines.
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Incandescent Dynamos, 50, 75, 100, 250 and 400 lights each.
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Leather Belting up to 30 in. wide.

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One Boiler, good as new, 48 in. diam., 14 ft. long, double riveted, 25 4-in. tubes; Wetherell & Co. make; fronts, bars and all trimmings complete.
Two 75 H.-P. Boilers, all complete; I. P. Morris & Co. make; best flange charcoal iron, double riveted; blow offs, 30, 36 in. diam.
Smoke Stacks, Iron Tanks, Engines and Boilers, all sizes. Nearly everything in the Machinery line. Scrap Iron and New and Old Metals.

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10 Wire Nail Machines, only been run a short time; will sell either all or part; also Forge, Tumbler, Sturtevant Exhaust, &c.

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To close the estate of **THE NEWHAVEN WIRE CO.**, its Wire Drawing Plant is offered for sale; the mill is now running at a profit; there are about four acres of land, a good wharf, substantial brick buildings, and machinery all in good order. For further information, address

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Choice Second-Hand Boilers, Engines and Machinery at First Hands.

Also odd lots new goods at greatly reduced prices. *Send for my list.*

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Second-hand, modern style, in good order; to punch ¾ hole in ¾ iron.

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IN STOCK.

Planers, 16 in. x 4 ft. Hendey. New.
" 20 in. x 4 ft. Lathe & Morse. New.
" 22 in. x 5 ft. " " "
" 22 in. x 5 ft. Fitchburg. New.
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Sensitive, Radial, Portable and Wall Drills.

Engine Lathes, 14 in. x 6 ft., 18 in. x 6-8-10 ft. Hendey. [New.
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Engine Lathes, 16 in. x 8 ft., 2d hand, Fitchburg. Good.
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Engine Lathes, 18 in. x 6 ft., Lodge & Davis. A1 order.
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Brass Lathes, Turret and Square Arbors, Cabinet Turret Lathe No. 2. Am Tool Co. Good.
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Universal Milling Machine, No. 2, Garvin. New.
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Large assortment of other Tools. Send for Complete List.

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To anyone who wishes to purchase for their own use.

1 Pease Planer, to plane 24 in. wide, 22 in. high and 6 ft. long.

1 25-Light Dynamo for Incandescent Lights.

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FOR SALE AT A BARGAIN.—One of Brown's Patent Hoists in good condition, in use but a few months. For any further description and prices address
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We have a good second-hand Cupola which will melt with ease 10 tons iron in two hours. It is about as good as new and will be sold cheap. Write for particulars.

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A lot of Boiler Flues 11 inches in diameter and 36 feet long. Cheap.

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3 Hochhausen 15 Arc Light Dynamos.
15 Standard Ball Arc Lamps.
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These Dynamos have been only slightly used, and are ready for immediate operation. They can be bought low for cash.

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ALL IN GOOD CONDITION.

50 H.-P. Slide Valve Corliss Frame Engine, Judson governor, 8 ft. wheel, 20 in. face.
65 H.-P. Return Tubular Boiler, 14½ ft. x 54 in., 60 3 in. tubes.
1 Smith & Vale Duplex Brass Lined Pump, 2½ x 4¾ x 4½.
1 7 ft. x 6 ft. Wooden Tank.
1 7 ft. x 18 in. face x 4 in. bore Driving Pulley.
1 16 in. Double Belt about 45 feet long, piping connections and lubricators complete. This lot cheap.
Several Steam Pumps.

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150 Tons 35-lb. STEEL T RAILS. Second-hand, but suitable for relaying.

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100 Tons Iron Rails, 35 lbs. to the yard Fit to relay. Address
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FOR SALE —One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address
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Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address
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Whole or half interest in Foundry and Machine Shop in the best town in the West. Everything new and running at full capacity on paying business. Good reasons given for selling.

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In West Chelmsford, Mass., all the Real Estate and Machinery formerly owned by the Hiscox File Co.; the real estate consisting of about 7 acres of land, together with the buildings and water power, and the machinery, being such as was used by them in the manufacture of files, machine knives, sword blades and edge tools. There is also on the premises a good 75 horse-power Harris-Corliss engine and good boiler, also a large amount of shafting, belting and supplies. This property is situated about five miles from Lowell, and is very easy of access by railway, with excellent facilities. The entire property will be sold very cheap, either as a whole or in part, and will afford some party an excellent chance to enter into this business. For terms, &c., inquire of

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WANTED.

A good second-hand Boring Mill, to swing about 50 inches; also lathe of same swing with very short bed. Address, with particulars,

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For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need apply in person, with references, to
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The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

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The well-established business, known as THE GAYLORD, CROSS & SPEIRS CO., located in Waterbury, Conn., is offered for sale. This plant is on the corner of Benedict and Meadow Sts.; consisting of land, brick and frame buildings, &c.; the foundry and all machinery goes with sale; there is between $10,000 and $12,000 worth of machinery that goes with the business. The lot fronts on two streets, 164 feet on Meadow and 219½ feet on Benedict Sts.; there is ample room for another large machine shop or any kind of manufacturing business without being cramped for room; this plant is only two minutes' walk from depot. The reason why this valuable property is put in the market at the price asked is because the owner is West and cannot give the attention that it requires. Take the business in consideration, both in foundry and machine work, it is a rare opportunity that does not occur every day, where one can buy an established business for the low figure, $45,000. The land and buildings alone are worth the price I ask, without the machinery. Address
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COAL at **50 cents per ton for twenty years; $1,000,000 cash,** and desirable location, with railway facilities, at **$100 PER ACRE,** worth $500, as special inducements to encourage new manufacturing industries

MEANS that **PITTSBURG, Kansas,** with its unequaled railway connections, is the best point on this continent for the establishing of smelting works, foundries and machine shops and any kind of manufacturing industry consuming coal and looking to the U. S. and Mexico for a market; guaranteeing

PROSPERITY to every dollar invested and every man employed. Gas, 75 cents per thousand. Taxes 3 per cent. on a 30 per cent. valuation; four trunk railways; $7,000,000 invested in industrial enterprises, best of free schools, property cheap. **Now is the time to invest. Come and investigate.** Write for information and Maps. **TO PITTSBURG**

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FOR $25,000

I will sell a very profitable Manufacturing Plant, all running in good shape; goods sold as fast as produced; poor health the only motive for selling; experience not essentially necessary, as all work is produced by the piece; margin of profit very large. Running 15 years without a stop. This is an extraordinary chance for an energetic young man. Address
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Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.
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135 ACRES OF LAND

in Wyandot County, Ohio, to exchange for a Stock of Shelf Hardware in Ohio. Address
A. J. FREDERICK,
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A MANUFACTURING COMPANY,

who will have from $75,000 to $100,000 paid up capital, wish to enlarge their works and will seek new location where good railroad facilities and cheap fuel can be obtained; offers of grounds and buildings, with expense of moving will be considered.

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Heavy Brass, Copper and Brass Turnings; state quantity and price for spot cash.

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A RARE CHANCE.

A first-class Hardware Store and Stock for sale, in Northwestern part of New York State, in a good thriving town of 5000 inhabitants; stock consists of Hardware, Stoves, Tin and Kitchen-furnishing Goods; stock would be sold and store rented if desired; can do $35,000 to $40,000 per year with a good profit; stock is all clean and will invoice about $10,000; good reason given for selling. Address "No. 10," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

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Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock, $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

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The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address
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A good, clean stock of Hardware, Stoves and Tinware, with Tin Shop connected, located in the prosperous City of Charlotte, Mich.; stock and fixtures will invoice about $7000; business has been established about 20 years; reasons for selling, one of the partners wishes to engage in other business. For further particulars, address
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A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address
"SPECIALTY" Box 818,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FACTORY FOR SALE.

A commodious and well-built brick Shop, 40 ft. x 120 ft., two stories high, with first floor clear of posts; engine and boiler house attached, fitted with shafting, heating apparatus, &c.; with additional lot 55 ft. x 140 ft. connected, all for sale at a low price; reason for selling, new shop twice the capacity being built. Terms and prices can be obtained by referring to
THE NATIONAL PIPE BENDING CO.,
New Haven, Conn.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.
W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

FOR SALE.

An old-established Wholesale General Hardware Business, located at Burlington, Iowa. Has the advantages of both rail and water communications, and one of the best distributing points on the Upper Mississippi River; good trade already established and am to-day doing a good business; stock on hand about $70,000; have five salesmen on the road; do business in Western Illinois, Northern Missouri, Eastern Nebraska, Southern Dakota and Minnesota and a large portion of Iowa.

The largest portion of my trade comes from Iowa. The territory can be extended and trade increased if desired. This is a rare opportunity for any one wishing to step into a good business already thoroughly established. Reason for wishing to sell out—poor health. For any information desired pertaining to the business and location, I would refer you to Ross & Fuller, 33 Chambers St., N. Y.; Clement M. Biddle & Co., Philadelphia; the National State Bank of Burlington, Iowa, or the undersigned

LYMAN H. DRAKE.

SOUTHERN CALIFORNIA.

CLIMATIC PARADISE OF THE U. S.
No Snow. No Cyclone.

A Store For Sale.

Good will and stock of about $4,000 in Hardware' Crockery and House Furnishing goods. Price of the two-story brick building (21 x 48 feet), garden and yard (together 12,131 square feet) $7,000. The city of Anaheim (population 1,500), the oldest settlement of Southern California, is surrounded by an extensive farming country, has the finest drinking water and has for healthfulness no rival on the coast. It is situated about 26 miles southeast of Los Angeles and 14 miles from the Pacific Ocean. The store lies between the Southern Pacific and Santa Fé Railroad depots. Address: Charles Pamperl, Anaheim, Orange County, California.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot, unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.
WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

FOR SALE.

27 Gross Tons Steel Rails, 4 feet long and over.

SIMON & BLONDER BROS.,

OFFICE and Yard: 158 and 160 WEST CHICAGO AVENUE,

CHICAGO, - ILLINOIS.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address,
"MISSOURI,"
office of *The Iron Age*, 220 S. 4th St., Philadelphia.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.
60-INCH LATHE WANTED AT ONCE.
FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER,
115 Dearborn St., Chicago.

WANTED.

Competent and reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.
Send for circular.

BURTON H. COOK,
21 Grand Ave., Brooklyn, N. Y.

TAKE NOTICE.

Representing a firm in Pottstown, Pa., who have foundry, machine shop, etc., attached, we want specialties such as boilers, engines, pumps, machinery, or what not, to manufacture either upon royalty or to make and sell. We have the plant, money and experience. It will pay you to write me.

H. H. MANSFIELD,
52 Wall St., New York.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

CAPITALIST wanted to engage in the wholesale hardware business in this city. To one who is familiar with the trade a rare opportunity is offered. Communications may be addressed in confidence to "VIATOR," office of *The Iron Age*, 66 and 68 Duane St., New York.

Capital Wanted.

$50,000 wanted by parties starting a Steel Rolling Mill and Forge, with Iron and Steel Sheets as part of a varied product.

Address
"STEEL MILL,"
office of *The Iron Age*, 220 So. 4th Street, Philadelphia.

What Have You You Want Sold?

A thoroughly practical business man, who will start on a business trip through the Northwest and West about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address
"TWO-THIRDS,"
office of *The Iron Age*, 66 and 68 Duane st., N. Y.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

FOR SALE.

On reasonable terms, an improvement in Butt, Strap, T and Gate Hinges, patented Sept. 16th, 1890. Strong and durable. Can be packed in boxes as shelf hardware. Manufactured and galvanized at one-fourth the price of plain iron now in use. Address "B.," 663 N. 13th Street, Philadelphia, Pa.

FOR SALE.

A quarter interest in the largest hardware establishment in a growing Western city of nearly 100,000 inhabitants, doing a business of $250,000 annually. Address
"2943,"
office of *The Iron Age*, 66 and 68 Duane street, New York.

AT A SACRIFICE.

Paying Hardware and Paint Business, in large manufacturing city, 25 minutes from New York; stock $6000; poor health reason for selling; a rare chance for one wishing to buy. Address
"SACRIFICE,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

AUCTION NOTICE.

HAYDOCK & BISSELL,

Auctioneers.

Wednesday, October 29th, at 10 o'clock, a. m.,

—AT—

Nos. 12 Murray St. and 15 Park Place, NEW YORK.

BY ORDER OF

The St. Louis Stamping Co.

Large, special and peremptory sale of

GRANITE IRONWARE,

First quality (discarded patterns) and seconds, on **ninety days' time** for approved notes for all bills of $200 or over—under $200, net cash. This will be the **last sale this year of either Granite or Agate Ware,** and will include a *complete assortment* of above *desirable goods,* to be sold by the case or in open lots. The entire sale is *without any reserve* whatever and is worthy the attention of the jobbing and retail trade

Thursday, Oct. 30th, at 10 o'clock

Large and peremptory sale of Stamped Tinned Ware, Tea, Table and Basting Spoons, Fry Pans, &c., direct from factory.

ALSO BY ORDER OF

Mess. Manning, Bowman & Co.

A large assortment of

Granite and Pearl Agate Tea and Coffee Pots, &c., &c. first quality (discarded patterns) and seconds, nickel trimmed. Also Hardware, Cast Steel Hatchets, Hammers, Axes, Shovels and Spades, &c., &c. The entire catalogue without any reserve.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $8000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

CAN WE SERVE YOU?

If you have a stock of Hardware to SELL in any city or town in the U. S

If you want to BUY a stock of Hardware in any city, town or village in the country.

If you want a traveling salesman for Hardware.

If you want a position as traveling salesman for Hardware.

If you want a tinner.

If you are a tinner and want a position.

Write the MERCANTILE EXCHANGE.
Macon City, Missouri.

All correspondence confidential.

TO MANUFACTURERS.

A man with ample experience in Wholesale Hardware, Stamped Ware, Cutlery and Tools is prepared to make engagements for the ensuing year. Address

"TOOLS,"

office of *The Iron Age*, 59 Dearborn Street, Chicago.

Manufacturers' Agent.

I am desirous of representing manufacturers of first-class Hardware, Cutlery and Tools, with headquarters in Chicago.

Address

C. B. JAMES.
98 Lake St., Chicago, Ill.

Blast Furnace Machinery!!!

EXCELLENT OPPORTUNITY!!

FOR SALE.—One I. P. Morris Blowing Engine, 84 in. stroke, 42 in. steam cylinder, 90 in. blowing cylinder. In perfect order.

One West Point Blowing Engine, 84 in. stroke, 40 in. steam cylinder, 90 in. blowing cylinder.

One Crane Bros. Steam Hoist, complete with iron frame, 8 in. cylinder, 9½ in. stroke, 36 in. drum with 14 in. face.

Parties wishing duplicate engine for their blast furnace or others about to build a blast furnace could not have a better opportunity than the above. All in perfect order. Can be seen at any time. Address

"MORRIS,"

Office of *The Iron Age*, 66 and 68 Duane St., New York.

For Sale Cheap.

1 Newbold Horizontal Engine, 16 in. cylinder, 42 in. stroke, 14 foot balance wheel.
1 Mac Intosh Upright Engine, 16 in. cylinder, 36 in. stroke, 2 balance wheels about 6 ft. diameter.
1 Fishkill Landing Engine, about 15 H.-P., 9 in. cylinder, 18 in. stroke, driving pulley 6 ft. diameter.
1 Oscillating Engine, 2 10 in. cylinders, 12 in. stroke, with hoisting drum 4 ft. x 4 ft.
1 Slide Valve Horizontal Engine, 10 in. cylinder, 30 in. stroke, 10 ft. fly wheel.
1 Portable Engine, about 12 H.-P., with boiler.
1 Pump; 8 Large Charging Barrows; 27 Coal Barrows; 2 Ore Barrows; 1 Charging Scale; 6 Plain Cylinder Boilers, 48 ft. x 3 ft.; 3 Tubular Boilers, 14 ft. x 4 ft; Several Water Tanks; Air Chambers and Receivers; Super Heaters, &c., &c., from Blast Furnaces.

For prices and further information address

POULTERER & CO.
24 Bullitt Building, Philadelphia.

Blowing Engine and Furnace Hoist for Sale Cheap.

Blowing Engine. 30 in. steam cylinder.
Vertical, 70 in. air cylinder.
Tremaine Valve, 5 ft. stroke.
Worm Hoist, 24 in drum.

Both have been used in operating a 70-ton charcoal furnace. Replaced in enlarging plant.

Address BLOWING ENGINE,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

Two locomotives, "Hibernia" and "Rockaway," built in 1880 and 1883. Their principal dimensions are as follows:

Gauge, 4 feet 8½ inches.
Fuel, hard coal.
Boiler of iron, 40 in. diameter.
Firebox, 60 7-16 in. long, 30⅛ in. wide, 38⅛ in. deep.
Tubes of iron, 103 in number, 1¾ in. diameter and 9 ft. 11⅜ in. long.
Weight, in working order, about 60,000 lbs.
Cylinders, 14 x 22.
Driving wheels, when new, 43 in. diameter.

The engines have diamond stacks, one pump, one injector and a separate eight wheeled tender of 1600 gallons capacity.

Apply to J. W. PULLMAN, 238 So. Third St., Philadelphia, Pa. or GEORGE RICHARDS, Dover, N. J.

WANTED.

New or second-hand Combined Punch and Shear to punch and shear 1¼ inch and cut 6 inch Angle Iron. Also Traveling Crane about 35 feet span, 5 tons capacity. Address

"F. M.,"

Office of *The Iron Age*, 220 S. 4th St., Philadelphia

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Inducements offered to Manufacturers to locate in one of the best towns of 9000 population in America. Advantages unsurpassed. Parties of experience and capital address,

M. L. FUNKHAUSER,
Carlisle, Pa.

WANTED.

Manufacturers and Importers of Glass, Tin and Queensware, Druggists' and Stationers' Sundries, Wooden and Iron Goods, Chemicals, Toys, or anything carried by General Merchandise Stores, to mail us Catalogues and Price Lists.

W. S. BLACKSHEAR & CO., Jobbers,
Waco, Texas.

ESTABLISHED BUSINESS.

A clean stock of hardware, factory supplies, housefurnishing goods, stoves and tinware, located in a growing city of 16,000 inhabitants near New York, doing a business of $30,000 annually; business could be increased; would sell stock at market prices; good reasons for selling. Address

"CHARLES,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y

FOR SALE.

Valuable Mineral Property, located in Virginia. For particulars, address

D. A. A. KEYSER,
Backbone, Alleghany Co., Va.

HELP WANTED.

Undisplayed Advertisements for Help Wanted of exceeding fifty words One Dollar each insertion. Additional words two cents each.

ROLL TURNER wanted. Apply, stating experience, references and wages expected, P. O DRAWER A, Pottstown, Pa.

PIG IRON SALESMAN well acquainted with trade in Pennsylvania, New York and New Jersey that use Lehigh Iron. State age, salary wanted, where last employed; give references. Address "T. H. C." office of *The Iron Age*, 220 So. Fourth St., Philadelphia.

JANUARY 1st, 1891, a Salesman thoroughly acquainted with the Tin Plate and Metal business, to travel Northern and Central Ohio, Indiana, Illinois, Northwestern Pennsylvania, making Pittsburgh as headquarters. To a suitable person a liberal salary will be paid. Address Box 477, Philadelphia Post Office.

A FIRST-CLASS TRAVELING SALESMAN for German Hardware and Cutlery. Only those with a trade and experience need apply. Address VON CLEFF & Co., 105 Duane St., New York City.

MAN OF EXPERIENCE as Foreman or assistant foreman in shop building special heavy machines; state age, experience, references and wages expected. Address "SPECIAL MACHINERY," office of *The Iron Age*, 66 and 68 Duane St., New York.

MECHANICAL ENGINEER with experience in elevator work and competent to do estimating, laying out, etc., in the office and works. Address P. O. Box 211, Chicago, giving age, experience, references, salary, etc.

A MAN of experience as foreman in a Wire Nail shop to take charge of night gang. Also six wire nail machine operators of experience. Also a man who has had some experience at lathe work. Address "LATHE WORK," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

TREASURER WANTED.—An experienced financial manager who can control $10,000 to take the position of Treasurer, who has ability and experience in manufacturing. The works are situated in one of the most flourishing and enterprising cities in the Northwest. First-class references given and required. Address "A. D.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

FIRST-CLASS STOVE and Hardware Salesmen to take one good selling specialty on a commission. Address W. H. PECKHAM, Minneapolis, Minn.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING Co., Cuba, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

BY AN INTELLIGENT young man, position as Traveling Salesman; enterprising, good talker, neat address and of good family; at present with large manufacturing concern, but willing to sacrifice this if liberal inducements for selling on salary or commission are held out. Address "PROMPT," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh.

SITUATION AS MELTER. Has had long experience in melting and mixing Crucible Cast Steel, all grades; competent to take entire charge of one or more gas furnaces. Address "CRUCIBLE STEEL," office of *The Iron Age*, 66 and 68 Duane St., New York.

SITUATION as Blast Furnace Founder; 35 years' experience; can furnish best of references. Address ROB'T POLLOCK, Elmira, N.Y.

POSITION AS CHEMIST in either Iron or Steel Plant, Blast Furnace or Ore mines; am thoroughly competent and can furnish excellent references. Address "CHEMIST," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh.

A YOUNG MAN, 16 years' experience in General and Builders' Hardware, good Salesman, best of references as to business ability and moral character, would make connection with a good house in a live growing city, where a small amount of capital will obtain an interest in the business. Address "PROMOTION," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MARRIED MAN, 30 years old, would like position as Buyer or Sales Manager in wholesale Hardware house; 10 years' experience as a Traveling Salesman and 3 years in leading positions in the house where he now is; thoroughly familiar with all the details of a systematic business; excellent references. Address "SYSTEMATIC," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION by a Machinery Pattern Maker of long experience; have a good situation now in that capacity in Pennsylvania, but on account of my family preferring to live East, I wish to move there; can furnish first-class references; wages reasonable. Address "PATTERN MAKER," Box 200, office of *The Iron Age*, 66 and 68 Duane St., New york.

ROLLS, CHILLED AND GRAINED, for steel iron and metal rolling; also hard rolls for rolling paper and flour milling. Advertiser having been engaged many years with some of the largest English roll makers, wants situation as Assistant or Traveler; well up in mixtures; could provide drawings of modern roll foundry, air furnaces, chills, &c.; also estimates. Address "TIN PLATE," 614 Court St., Brooklyn, N. Y.

ENGINEERING KNOWLEDGE, ABILITY, broad experience in the foundry and machine business, and in manufacturing and construction, draughting, estimating costs and prices, correspondence, and a reliable, energetic nature, are the qualifications possessed by a thoroughly competent Mechanical Engineer, with experience and capacity to fill a responsible position. Address "EXECUTIVE QUALITIES," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BY A COMPETENT man having 25 years' experience in the manufacture of Builders' Hardware, position as Superintendent; understands the business thoroughly and the handling of men and material in an economical manner. Address "LOCKSMITH," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A PRACTICAL and experienced Hardwareman, now department manager and Hardware buyer of a large general store, having had 13 years' experience, desires position as Buyer, Manager, Assistant, or in other capacity of responsibility; capable of handling a large business successfully; can furnish finest references. Address "HARDWARE," Box 1005, Nanticoke, Pa.

MECHANICAL and Electrical Engineer (28), 3 years shop, 3 years university, 6 years office; speaking German and French, well acquainted with Spanish language, with experience in Corliss and Marine Engines, Paper making machinery, Dynamos, Electric Railways, Steam Cars and Bridge work, wants situation as Traveling Engineer for good firm. Address "CORLISS," office of *The Iron Age*, 66 and 68 Duane St , New York.

YOUNG MAN thoroughly posted in General and Builders' Hardware; has had 7 years' experience in retail hardware business and 3 years as traveling salesman for a large wholesale house, is now open for a position as a traveling salesman, either with wholesale hardware or manufacturing establishment; unquestionable references furnished. Address "THOROUGH," office of *The Iron Age* 66 and 68 Duane St., N. Y.

A GENTLEMAN, aged 43, possessing business abilities of a high order and a complete knowledge of the wholesale hardware business, will be open to an engagement January 1st. Higest references given. Address "B. B.," office of *The Iron Age*, 66 & 68 Duane St., New York.

AS FOREMAN of a malleable or light grey iron foundry; understands making malleable iron from air furnace and cupola; also understands annealing and pattern making; can give the best of references. Address "LIGHT GREY," Office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGH, practical and scientific man desires to take charge of blast furnace, steel works, in any way concerning the mining and manufacture of iron; also in addition can sell 20,000 tons of iron a year. Address "ONWARD," office of *The Iron Age*, 66 and 68 Duane St., New York.

A SITUATION by a practical bar and guide mill roller from 10 in. to 20 in. train. I have had charge of trains for 13 years. I can give good references. Address "10 to 20," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

POSITION as Superintendent in Hardware Factory, light or heavy, by a thoroughly practical man; good references. Address "POTTS," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MAN of 30 years' experience in the steel trade, a position to take charge of rolls as foreman in a mill or hammer shop, or will undertake the entire control of a crucible steel plant. Address "FOREMAN," 73 Green St., Cumberland, Md.

A GENTLEMAN of character and ability, with nine years' experience in the Iron, Steel and Hardware business, would like to correspond with some good manufacturer in the Iron and Steel or Hardware line, desirous of establishing a branch office or agency at Cleveland, O. Address "J. F. C.," office of *The Iron Age*, 219 Superior St., Cleveland, O.

POSITION WANTED by practical Foundryman familiar with all details in the production of soft, light and medium weight gray iron castings; can use molding machines to an advantage; 25 years' experience in the management of foundries employing from 10 to 100 men; American, middle age, strictly temperate; unquestionable references furnished. Address "CASTINGS," Lock Box 433, East Brookfield, Worcester Co., Mass.

BY MOLDER of 35 years' experience as Molder and Foreman; would like to superintend a shop doing good class of work; or would take a foundry doing rolling mill, steel works, blast furnace or wire mill work by the ton. Address "FOUNDER," office of *The Iron Age*, Room 511 Hamilton Building, Pittsburgh.

MECHANICAL ENGINEER and Draftsman, experienced in the designing of machine tools, special machinery, traveling cranes, hoisting machinery, hydraulic machinery, transmission of power, steam engines, single and compound, rolling mill work, etc., desires engagement. Address "CONSOLIDATION," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

RESPONSIBLE situation as head draftsman, superintendent or assistant. First class service for first-class pay. Address "W. T.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BY A THOROUGHLY experienced Hardwareman, a position as Traveler or Correspondent; has an experience of 15 years; for past six years had general charge of a large business, prior to which was on the road; fully competent to fill any important position in connection with the Builders' Hardware business. Address "A. M. B.," Box 7, office of *The Iron Age*, 66 and 68 Duane St., New York.

A WELL-KNOWN Hardware Salesman would like to make arrangements with some good manufacturer, to represent his line in the West and Northwest, where he has traveled for the last 15 years; would like a line of chisels and drawing knives, wrenches, or three or four small lines. Address "S. S. S.," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY MIDDLE AGED MAN, as foreman of Architectural and Machine Foundry. Best of references. Address "ARCHITECTURAL," office of *The Iron Age*, 59 Dearborn st., Chicago

A GENTLEMAN competent to undertake both the business and technical work desires a position as General Superintendent of a Coke Furnace; practical experience as furnace manager. Address "TECHNICAL WORK," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

A New and Splendid Companion to all the Metal Industries.

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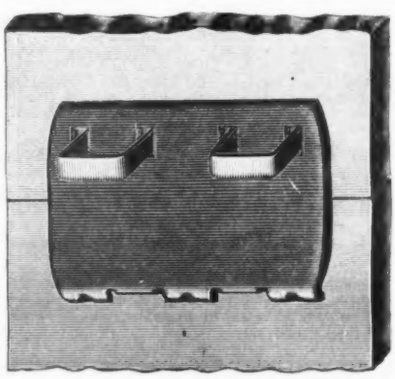
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WITH DETACHABLE TEETH.

It is the Lowest Price Hook now on the market, and will outlast six common Hooks, as the Belt can be taken up without removing the Plate. Send for Prices.

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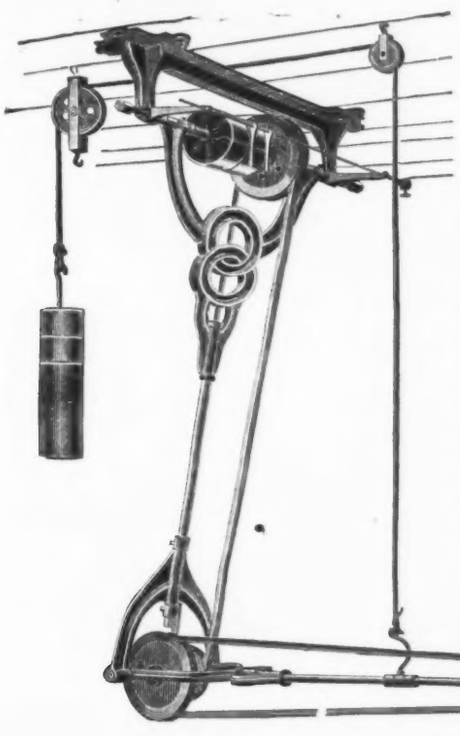
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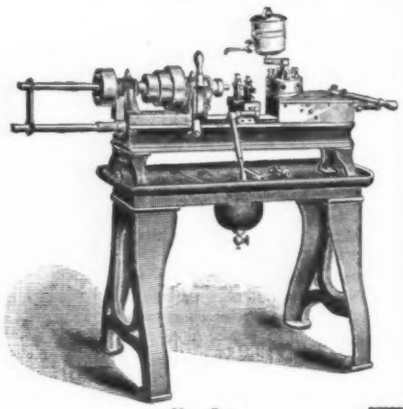
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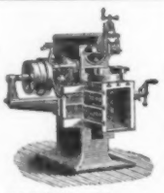
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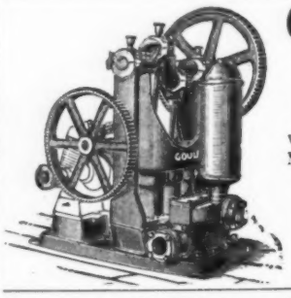


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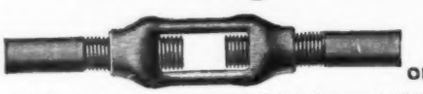
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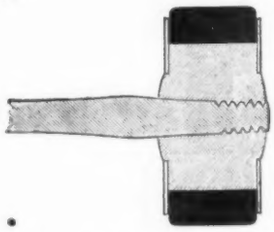
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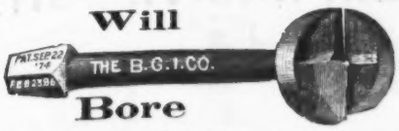
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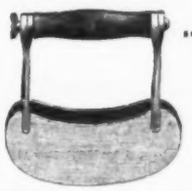
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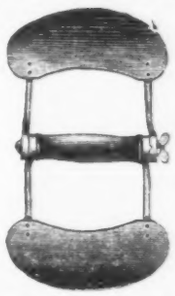
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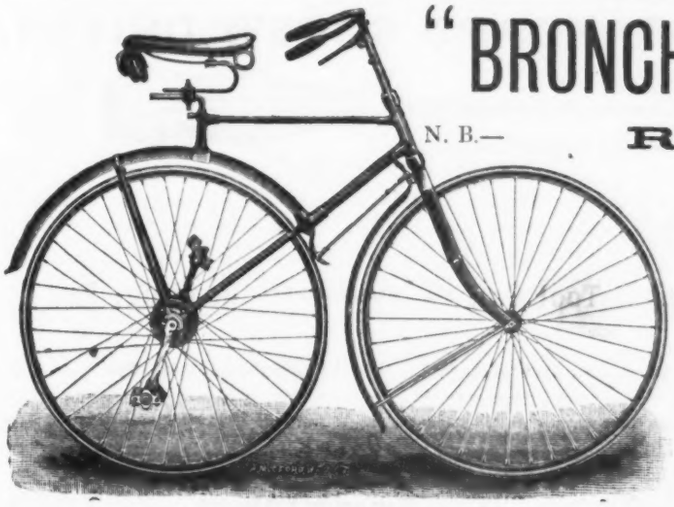
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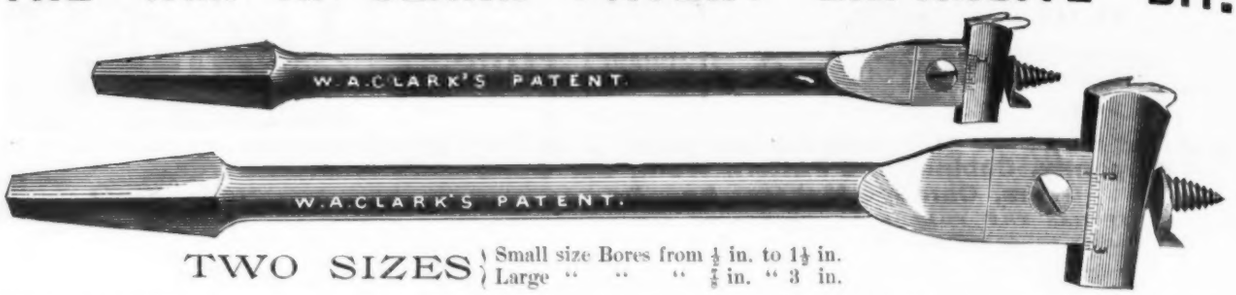
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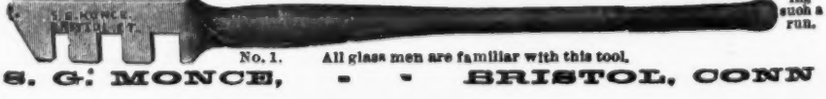
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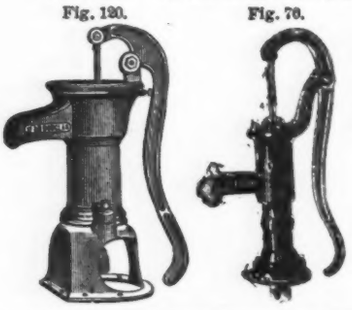
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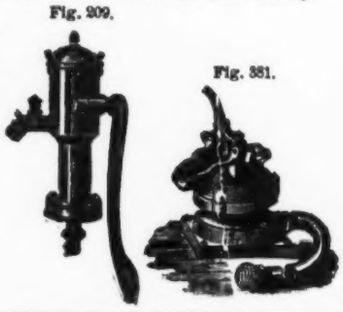
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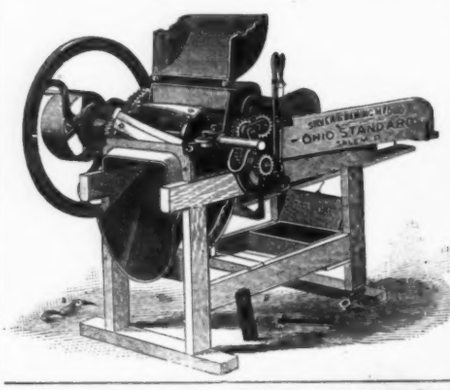
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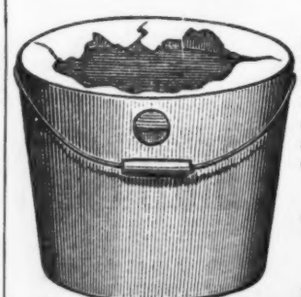


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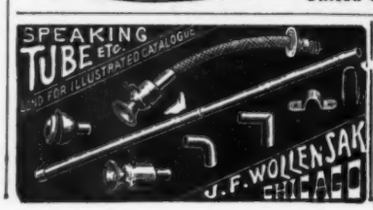


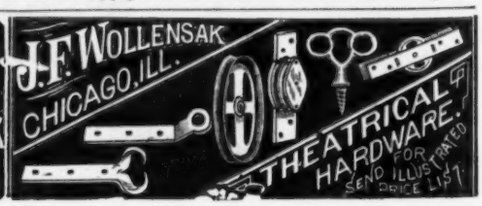
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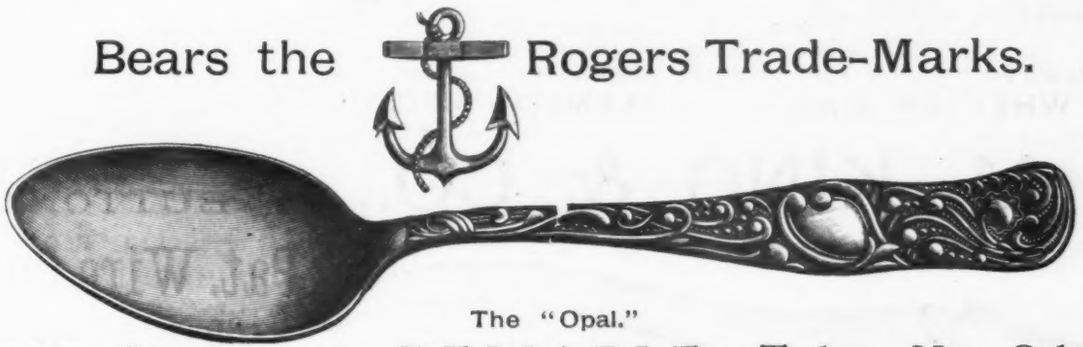
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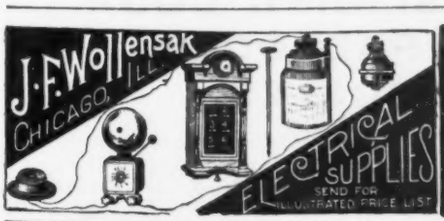
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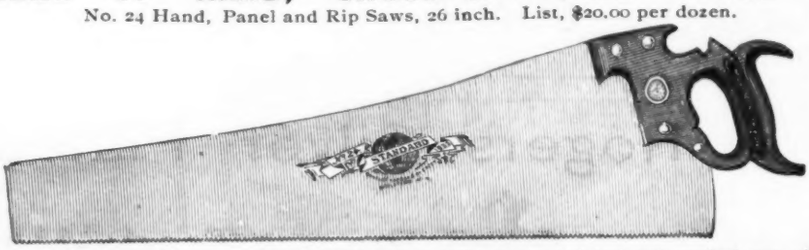
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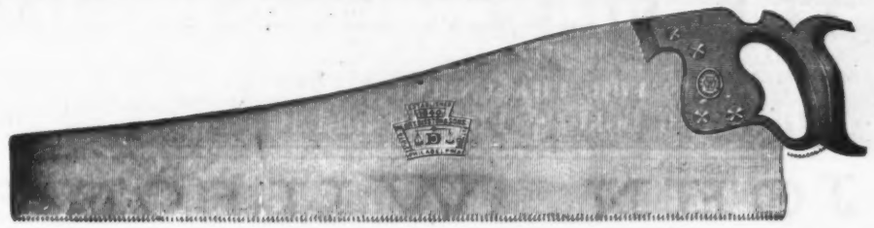
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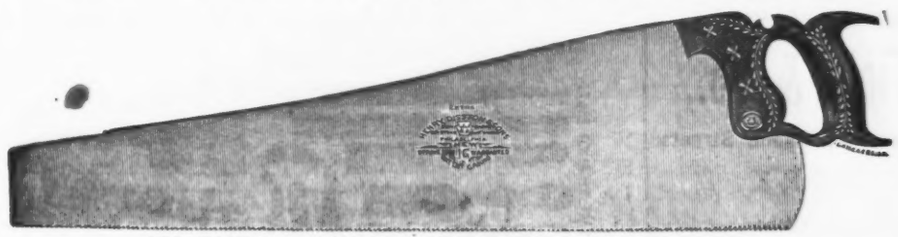
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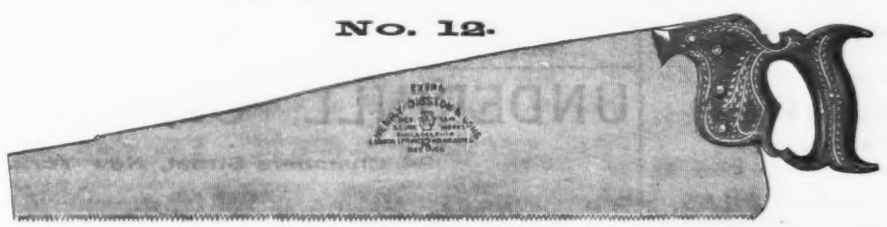
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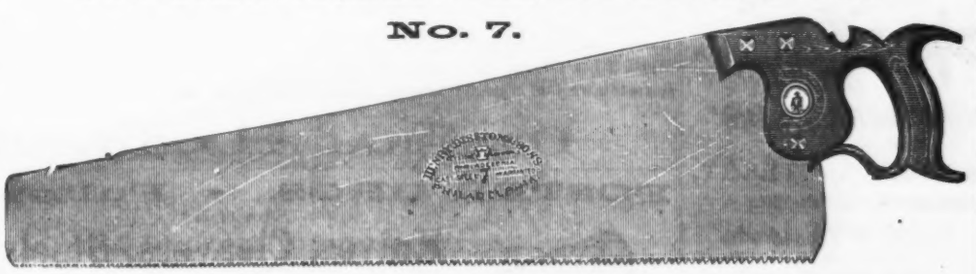
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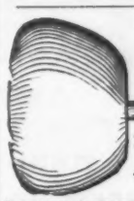
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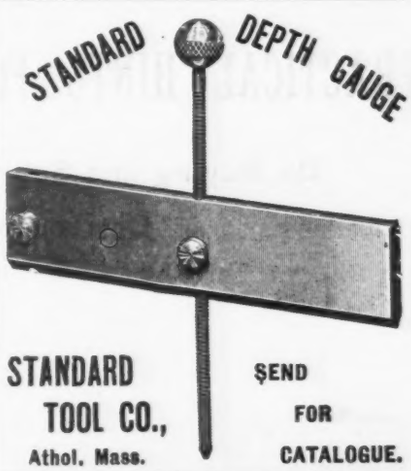
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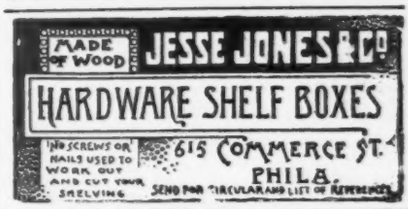
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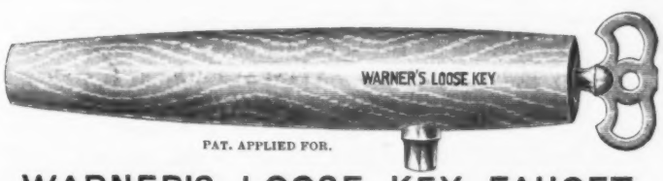


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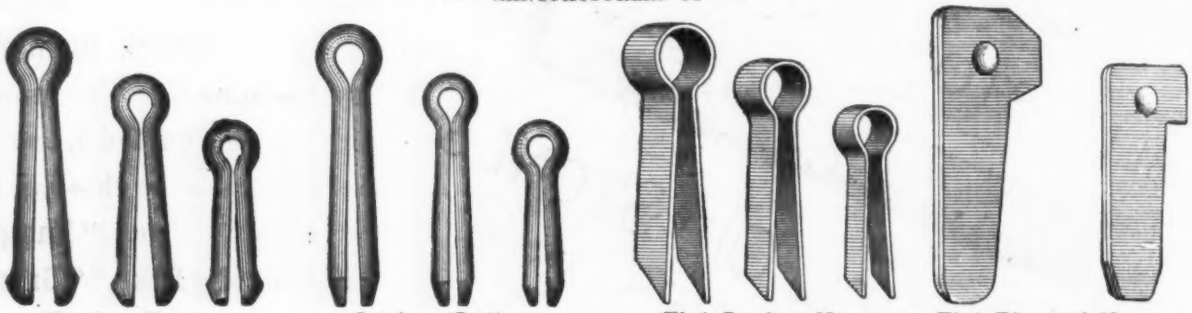
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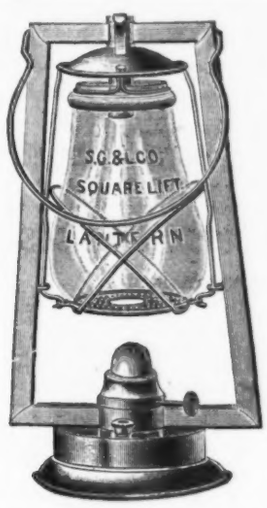
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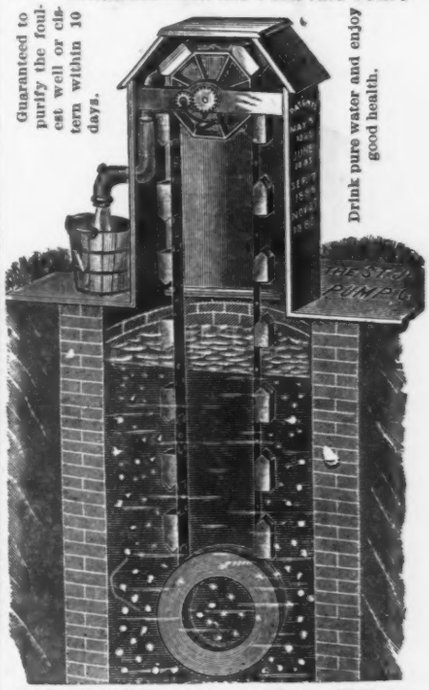
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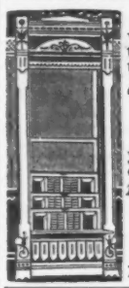
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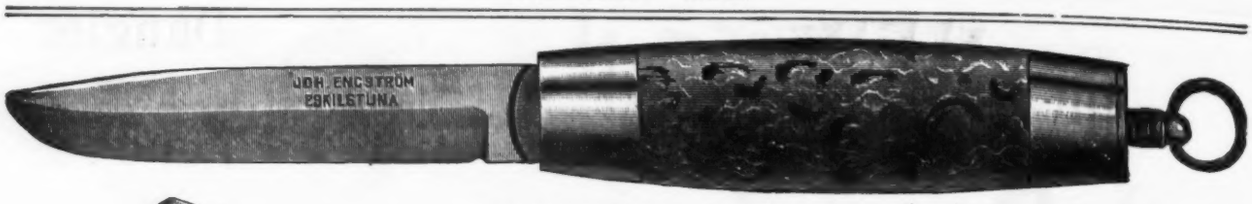
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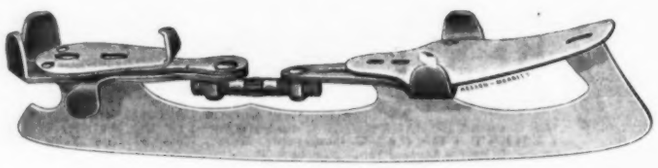
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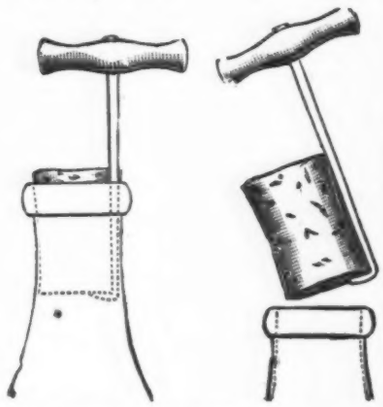


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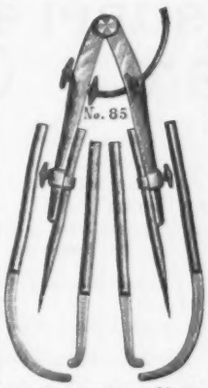
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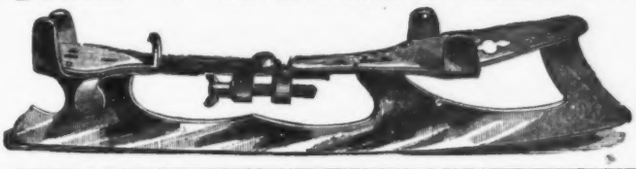
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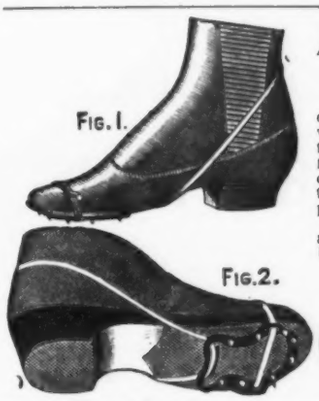


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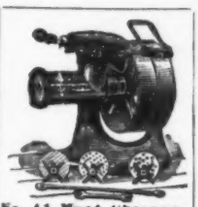
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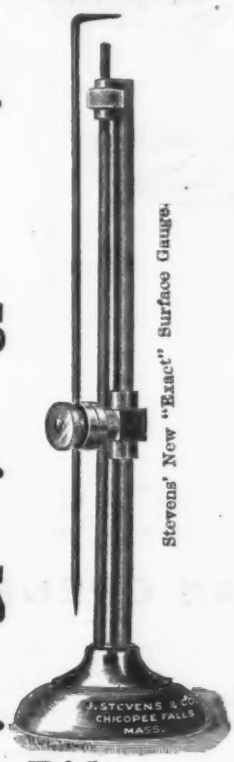
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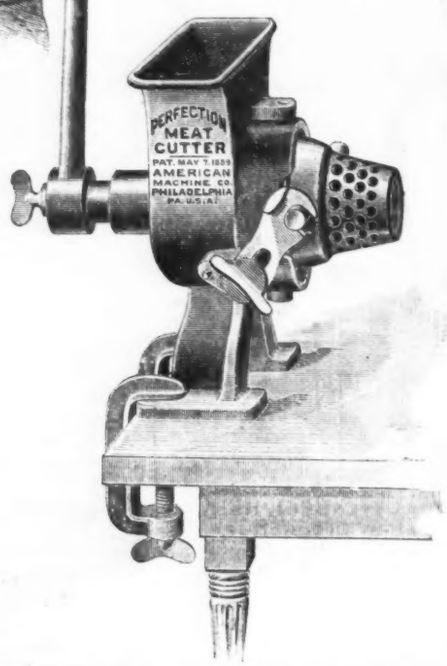
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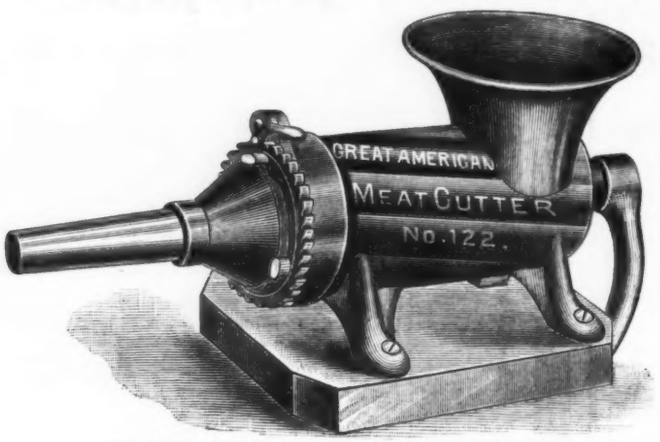
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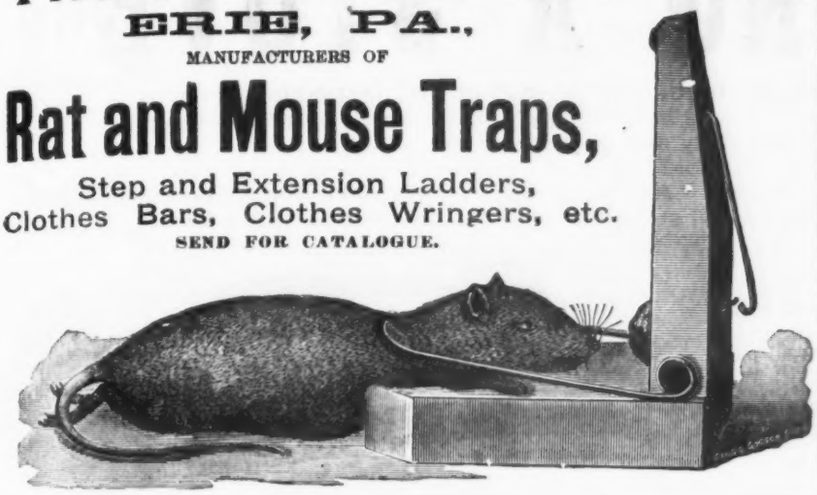
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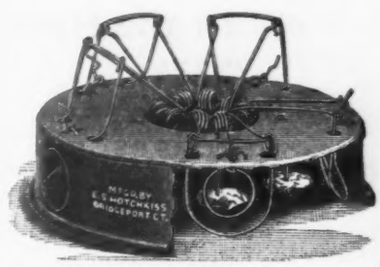
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HARDWARE.

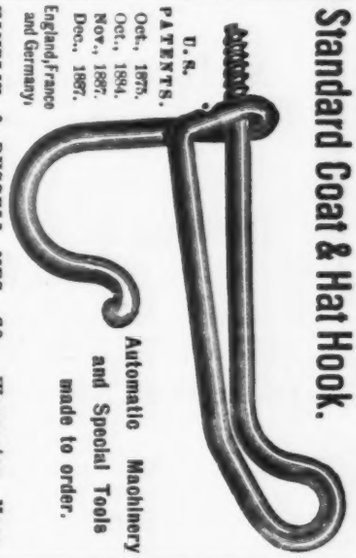
Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches, Horse and Toilet Clippers, Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016

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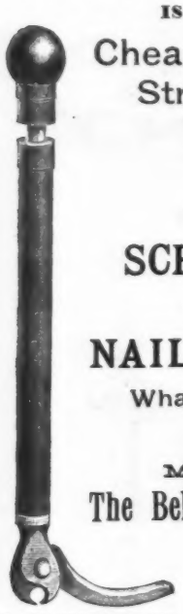


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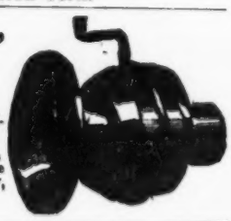
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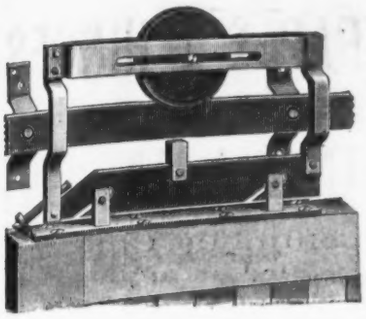
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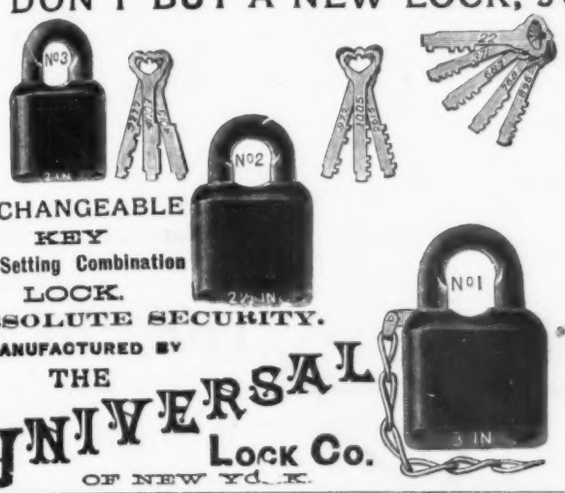
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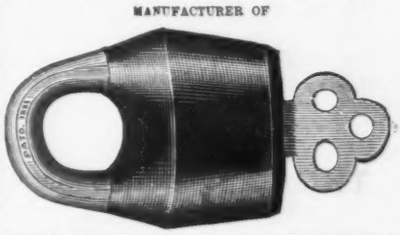
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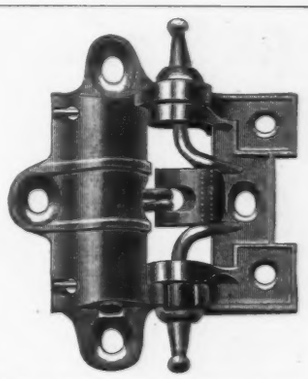


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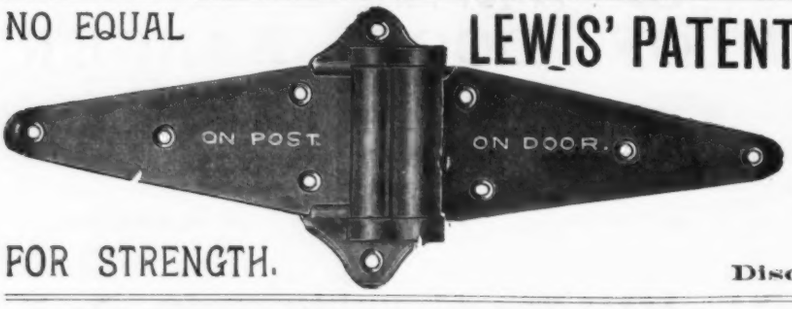


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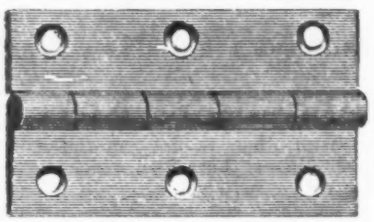
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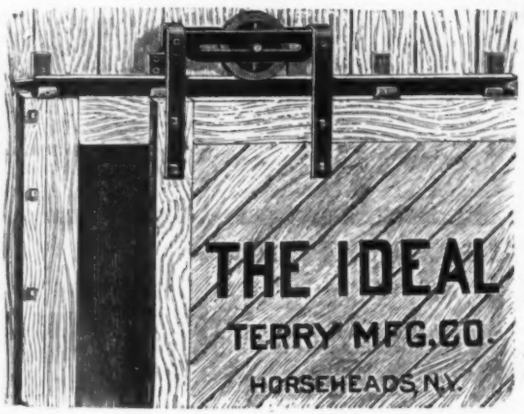


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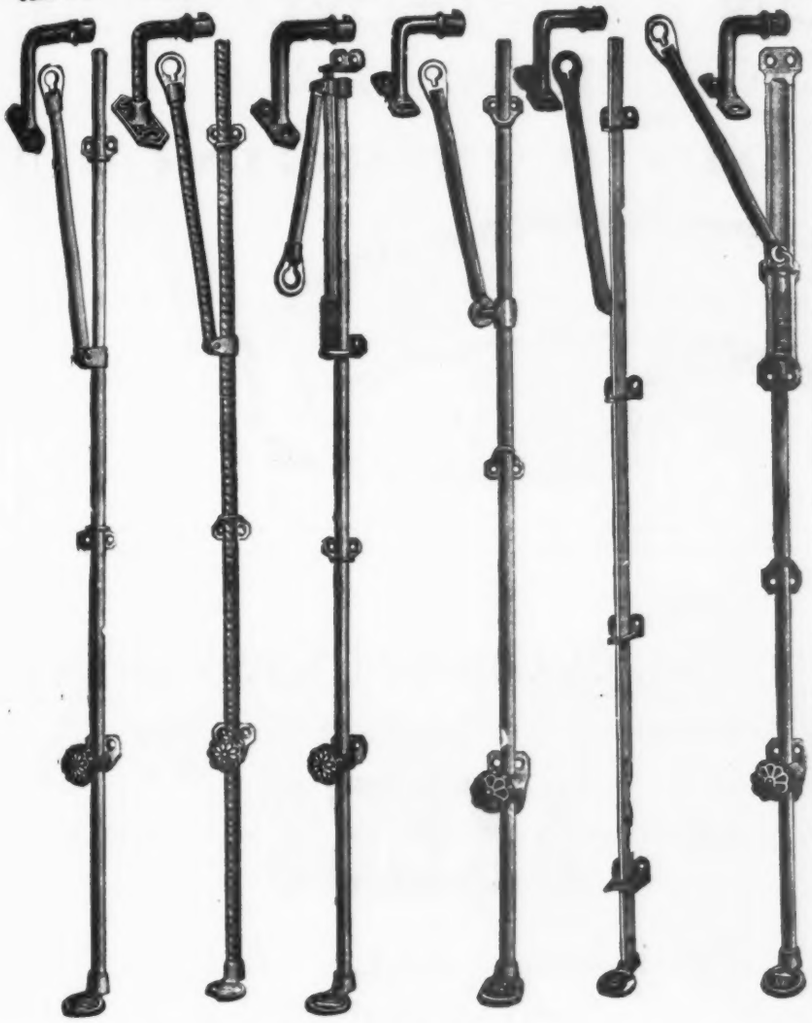
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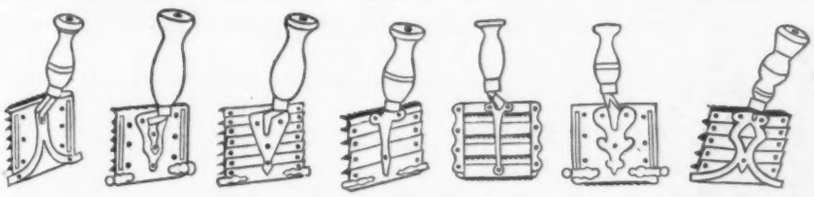
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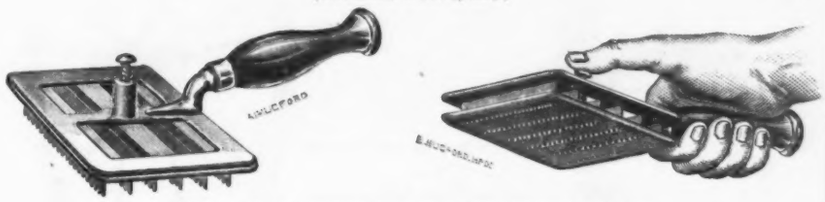
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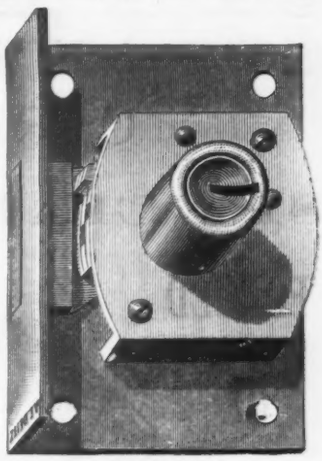


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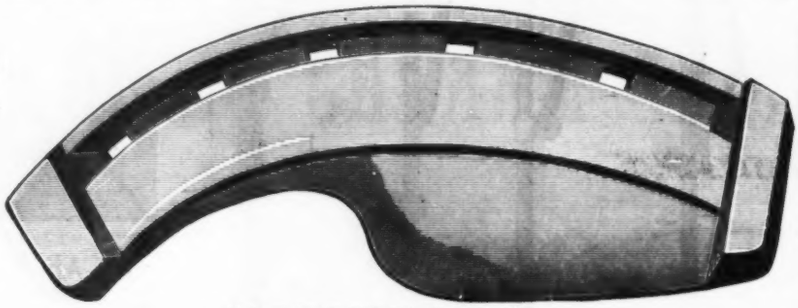
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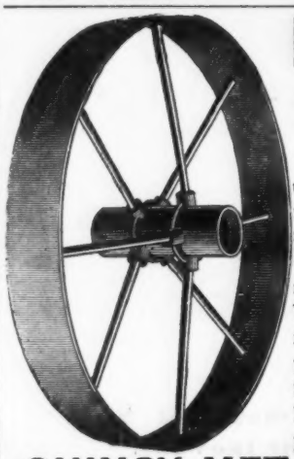
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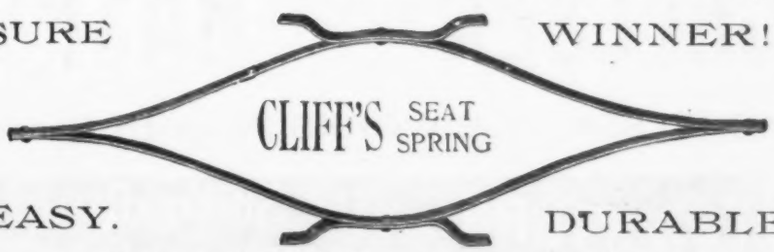
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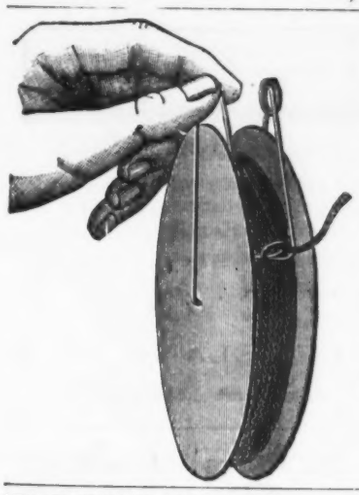
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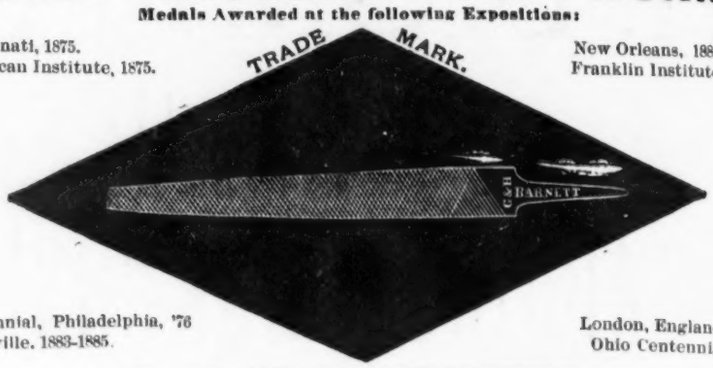
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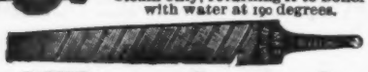
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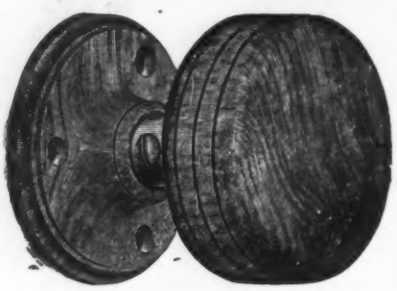


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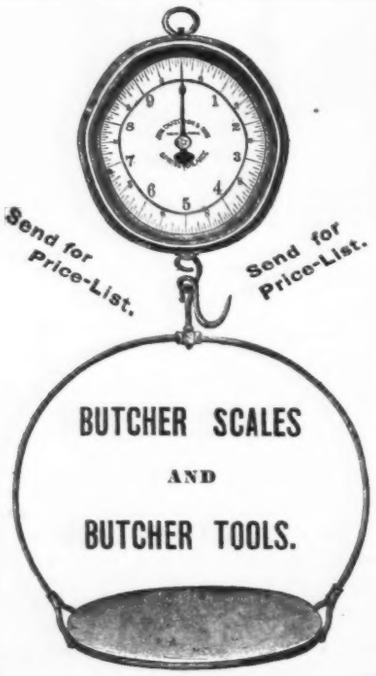
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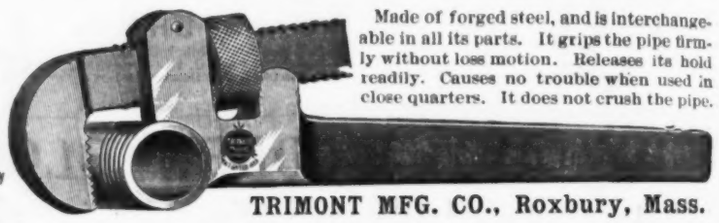
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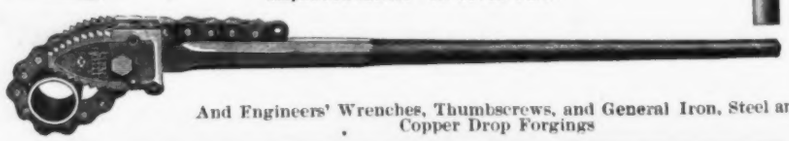
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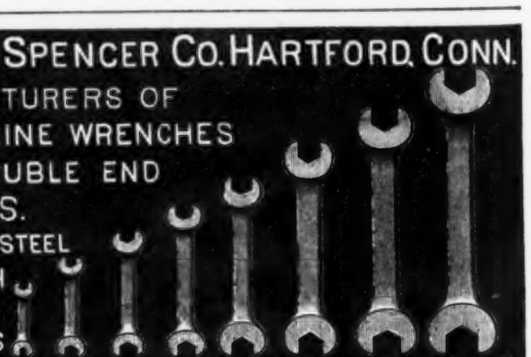
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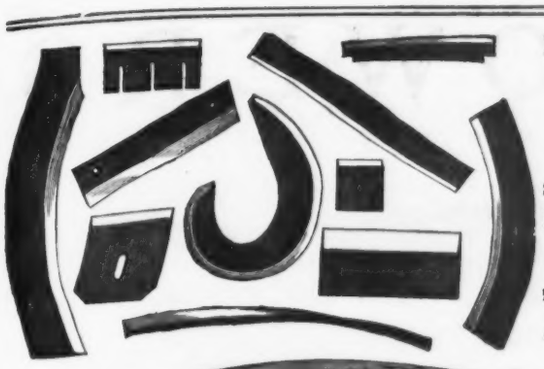
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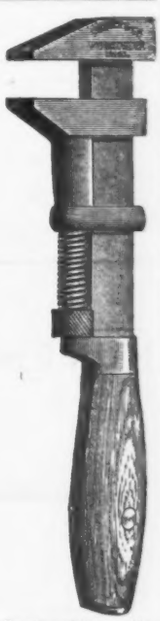
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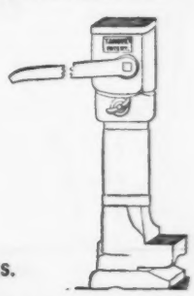
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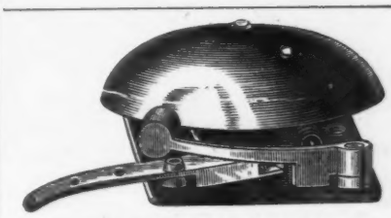


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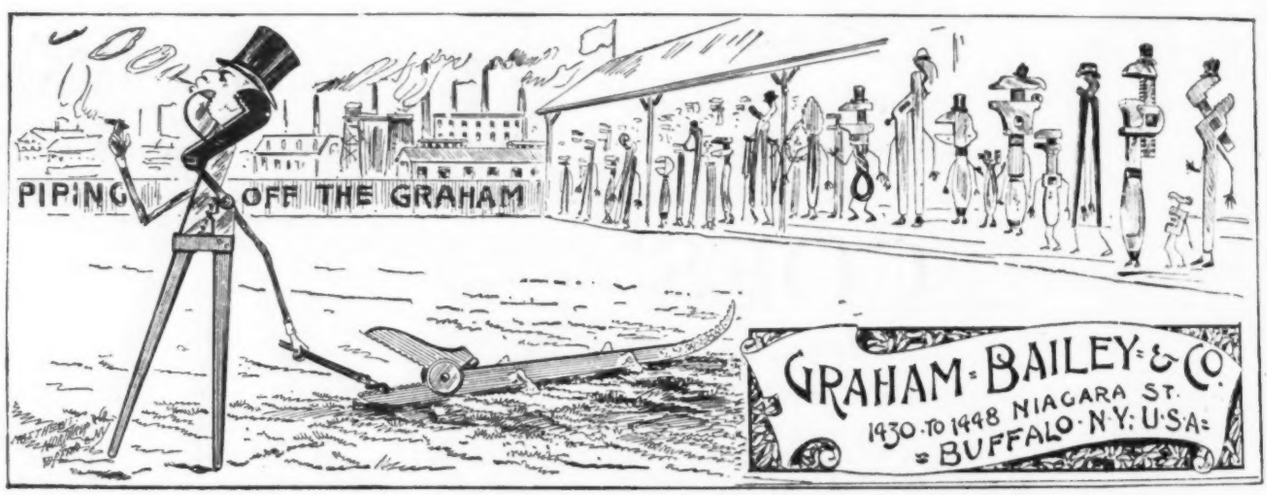
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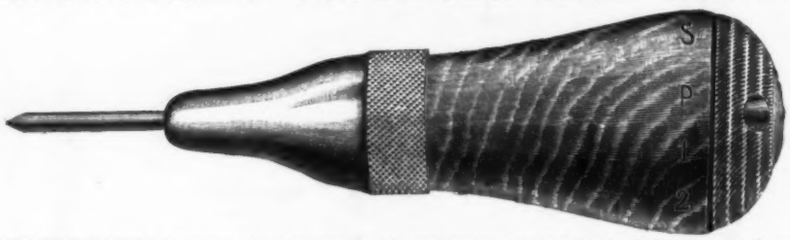
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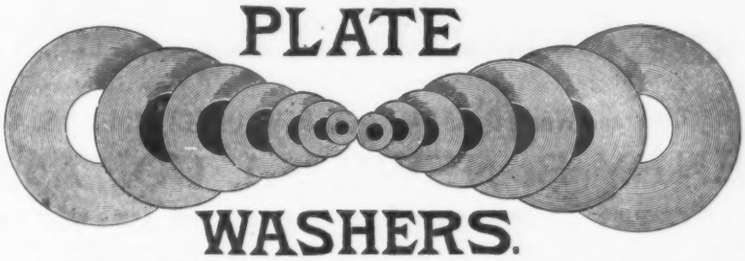
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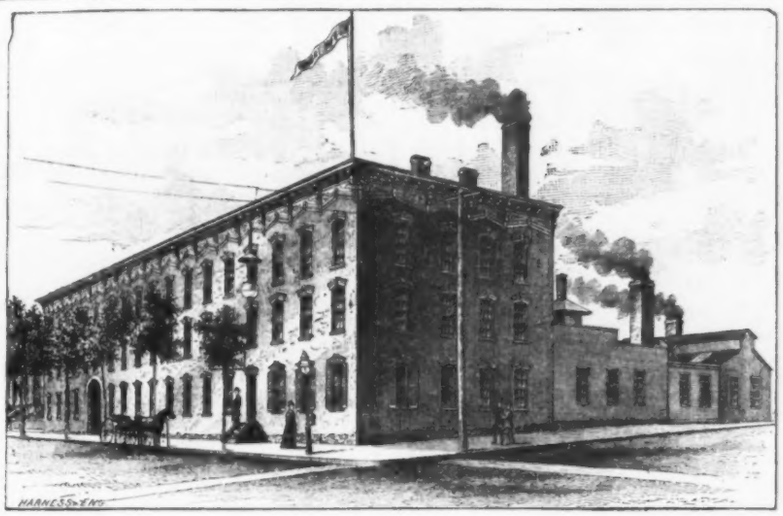
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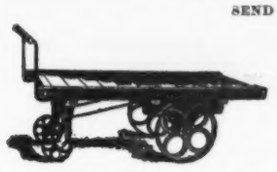
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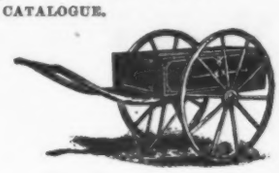
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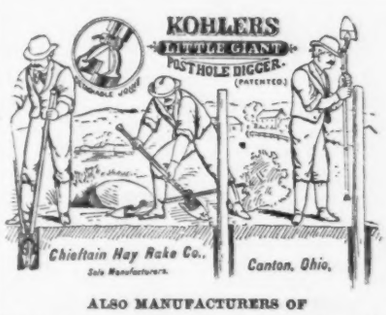
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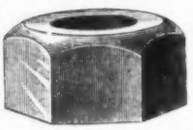
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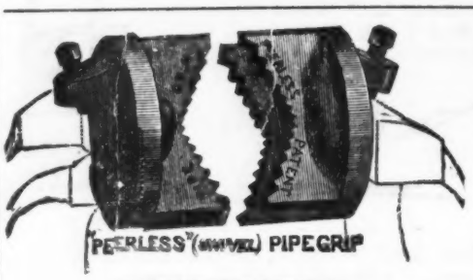
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Aluminum, Brass and Bronze.
Aluminum Brass and Bronze Co., Bridgeport, Conn.
Cowles Electric Smelting and Aluminum Co., Cleveland, O.
Pittsburgh Reduction Co., Pittsburgh, Pa.
Schmiedbarenguss Fce. Co., Newport, Ky.
Scovill Mfg. Co., Waterbury, Conn.

Analytical Chemists.
Britton, J. Blodgett, Philadelphia, Pa.
Hunt, Robt. W. & Co., Chicago, Ill.
Moore, Dr. Gideon E., 69 Liberty, N.Y.
Westessen, Jno, Philadelphia, Pa
Stein & Schwarz, Philadelphia, Pa.

Anti-Friction Metals.
Deoxidized Met. Co., Bridgep't, Conn.
Magnolia Anti-Friction Metal Co., 74 Cortlandt, N. Y.
Phillips, F. R., Philadelphia, Pa.
Reeves, Paul S., Philadelphia.

Anvils, *Makers of.*
Wright, Peter.

Arms and Ammunition.
Forehand & Wadsworth, Worcester, Mass.
Hartley & Graham, 19 Maiden Lane, N. Y.
Union Metallic Cartridge Co., 19 Maiden Lane, N. Y.

Auctioneers.
Haydock & Bissell, N. Y.

Axes.
Peck, A. G. & Co., Cohoes, N. Y.
Sherman & Co., Belfast, Me.

Axle Grease.
Lovell, Tracy & Co., Hartford, Conn.

Axles, Springs, &c., *Manufrs of.*
Cleveland Axle Mfg. Co., Cleveland, O.
Gautier Steel Dept. of Cambria Iron Co., Johnstown, Pa.
Wurster, F. W., Brooklyn, N. Y.

Babbitt Metal.
Crown Smelting Co., Chester, Pa.
Deoxidized Met. Co., Bridgeport, Conn.
Magnolia Anti-Friction Metal Co., 74 Cortlandt, N. Y.
Phillips, F. R., Philadelphia, Pa.
Reeves, Paul S., Philadelphia, Pa.

Band Saws.
Atkins, E. C. & Co., Indianapolis, Ind.
Pryibil, P., 467 W. 40th, N. Y.

Bankers.
Gallaudet, P. W. & Co., 2 Wall, N. Y.

Barb Wire and Fence.
Gautier Steel Dept. of Cambria Iron Co., Johnstown, Pa.
Hawkeye Steel Barb Fence Co., Burlington, Ia.
Iowa Barb Wire Co., 98 Reade, N. Y.
Ludlow-Saylor Wire Co., St. Louis, Mo.
St. Louis Wire Mill Co., St. Louis, Mo.
Washburn & Moen Mfg. Co., Worcester.

Beams, Steel and Iron.
Moffatt, F. D. & Co., 81 Fulton, N. Y.

Bellows, *Manufacturers of.*
Bullock Bellows Co., Cleveland, O.
Scott, Geo. M., Chicago, Ill.

Bells (Sleigh).
Bevin Bros. Mfg. Co., East Hampton.

Belt Dressing.
Jos. Dixon Crucible Co., Jersey City, N.J.

Belt Fasteners.
Bristol Mfg. Co., 132 Nassau, N. Y.
Clafien Mfg. Co., Cleveland, Ohio.
Talcott, W. O., Providence, R. I.
Union Belt Fastener Co., Unionville, Conn.

Belt Punches.
Sayre, L. A., Newark, N. J.

Belting, *Makers of.*
Alexander Bros., 412 N. 3d., Phila.
Jeffrey Mfg. Co., Columbus, O.
Main Belting Co., Philadelphia, Pa.
Midgley Wire Belt Co., Beaver Falls, Pa.
N. Y. Belting & Packing Co., N. Y.
Page Belting Co., Concord, N. H.
Shultz Belting Co., St. Louis, Mo.

Bicycles.
Coventry Machinists Co, L'd, Boston, Mass.
Eagle Bicycle Mfg. Co., Stamford, Conn.
Hartford Cycle Co., Hartford, Conn.
Livingston, M. V. Cycle Mfg. Co., Westboro, Mass.
Overman Wheel Co., Chicopee Falls, Mass.

Bird Cages.
Hendryx, Andrew B & Co., New Haven, Conn.

Bits and Braces.
American Bit Brace Co., Buffalo, N. Y.
Amidon, C. H., Buffalo, N. Y.
Bridgeport Gun Implement Co., 19 Maiden Lane, N. Y.
Saxton, E. R., Buffalo, N. Y.

Blinds, Window.
Hartman & Durstine, Wooster, Ohio.

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Cleveland Block Co., Cleveland, O.
Coleman, Walter & Sons, Providence, R. I.
Laughlin, Thos. & Son, Portland, Me.
McMillan, Wm. H., 113 South, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Shubert & Cottingham, Phila.
Toledo Block Works, Toledo, Ohio.

Blowers.
Buffalo Forge Co., Buffalo, N. Y.
Sturtevant, B. F., Boston, Mass.

Boiler Makers' Rolls.
New Doty Mfg. Co., Janesville, Wis.

Boiler Plates.
McIlvain, Wm. & Sons, Reading, Pa.

Boiler Tubes.
Continental Iron Works Co., Brooklyn, N. Y.

Boilers, Copper.
Randolph & Clowes, Waterbury, Conn.

Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt, N. Y.
Broomell, Schmidt & Co., Ltd., York, Pa.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Edge Moor Iron Co., Wilmington.
Foundry & Mch. Dept., Harrisburg, Pa.
Pollock, W. B. & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Bolt Cutters.
Chambers Bros. Co., Philadelphia.
Howard Iron Works, Buffalo, N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Ore.
Leigh, E. B., St. Louis, Mo.
Walcott & West, Syracuse, N. Y.
Williams, David, 66 & 68 Duane, N. Y.

Boot Calks
Lufkin Rule Co., Cleveland, Ohio.

Boxes, Hdw. Shelf, &c.
Green, S. H., 22 Park Place, N. Y.
Jone, Jesse & Co., Philadelphia, Pa.
National Metal-Edge Box Co., Phila.

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Davol, John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Randolph & Clowes, Waterbury, Conn
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., 421 Broome, N. Y.
Waterbury Brass Co., 296 B'way, N. Y.

Brass Butt Hinges.
Tiebout, W. & J., 16 & 18 Chambers, N. Y.

Brass Founders.
Cramp, B. H. & Co., Philadelphia, Pa.
Deoxidized Metal Co., Bridgeport.
Reeves, Paul S., Philadelphia.
Springfield Foundry Co., Springfield, Mass.

Brass Goods.
Brass Goods Mfg. Co., 88 Chambers, N. Y.

Brushes.
Rennous, Kleinle & Co., Baltimore, Md.

Buffing Composition.
Matchless Metal Polish Co., Chicago, Ill.

Butcher and Shoe Knives, *Manufacturers of.*
Wilson, John, Sheffield, En land.

Butts and Hinges.
Lanman, E. B., Columbus, Ohio.
Sabin Machine Co., Montpelier, Vt.
Tiebout, W. & J., 16 Chambers, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Can Openers.
Alliger, Hasbrouck, 125 Chambers, N.Y.
Goodell Co., Antrim, N. H.
Wheeler Patent Can Opener Co., St. Louis, Mo.

Car Axles.
Roberts, A. & P. & Co., Phila.

Car Wheels.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Whitney, A. & Sons, Phila.

Carriage Hardware, *Makers of.*
Clapp, E. D. Mfg. Co., Auburn, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe, Birmingham, Conn.

Castings, Iron and Steel.
Arcade Malleable Iron Co., Worcester, Mass.
Booth, The Lloyd, Co., Youngstown, O.
Buffalo Steel Foundry Co, Buffalo, N Y.
The Burr & Houston Co., Brooklyn, N.Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Janney, M. P., Pottstown, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morris, Tasker & Co., 224 South Third Street, Phila.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Mooy, Cleveland, O.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Sharon Steel Castings Co., Sharon, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
St. Louis Steel Fdry Co., St. Louis, Mo.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron W'ks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Thos. D. West F'dry Co., Cleveland, O.
Watkins Chilled Plow Co., Watkins, N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Hendryx, Andrew B. & Co., New Haven, Conn.

Chemicals and Apparatus.
Eimer & Amend, 205 Third ave., N. Y.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited), 4 and 6 Warren, N. Y.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.

Cork Pullers.
Greely, B. J., Boston, Mass.
Meriden Malleable Iron Co., Meriden, Conn.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Jersey City Galvanizing Co., Jersey City, N. J.
Moseley Iron Bridge & Roof Co., 5 Dey, N.Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Cottages, Portable.
Iron Cottage Co., Grand Rapids, Mich.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass.
Southington Cutlery Co., Southington, Conn.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N.Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Foster Bros., Fulton, N. Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.

Door Checks.
Morton Door Check & Spring Co., Boston, Mass.

Door Hangers, House and Barn.
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horsehead, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Burnham, G. & Co., Worcester, Mass.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Dripping Pans.
St. Louis Dripping Pan Co., St. Louis, Mo.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Foster Bros., Fulton, N. Y.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of,*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.
Stokes & Parrish Elevator Co., Philadelphia, Pa.

Emery Wheels.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila,
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Harrisburg Car Mfg. Co., Harrisburg, Pa.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless. Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.
Warner, H. A. & A. H., Bristol, Conn.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick. *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Pope, C. E. & Bro., Pittsburgh, Pa.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

(See Alphabetical Index, Page 94.)

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foot Rests.
Chicago Nickel Works, Chicago, Ill.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
Russia Cement Co., Gloucester, Mass.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hames.
Wilcox, Wm. Mfg. Co., Middletown, Ct,

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H., 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Salomon, L., 118 Chambers, New York.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit, Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt,

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan. Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co, 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moers, E. M., Cincinnati, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mincing Knives.
Shepard, Sidney & Co., Buffalo, N. Y.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mcl.. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, F. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord. Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris, Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass.
"Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Coverings.
National Pulley Covering Co., Baltimore, Md.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.

(See Alphabetical Index, Page 94.)

Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Schwarzenberg Bros. & Co., Cleveland, O
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N. Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules, *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co, Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chattillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Peck & Snyder, 124 Nassau, N. Y.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Malden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess, Cook & Co., Pittsburgh, Pa.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Butts & Ordway, Boston, Mass.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Barlass Bros., Janesville, Wis.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.
Todd, H. B., Meriden, Conn.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.
Riehlé Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y.
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y.
Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Mason Iron Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester,
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty,
Sweetser, W. A. Brockton, Mass.

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American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
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Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
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Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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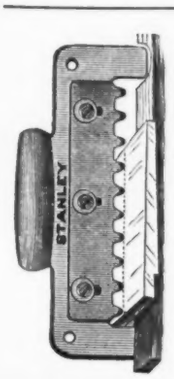
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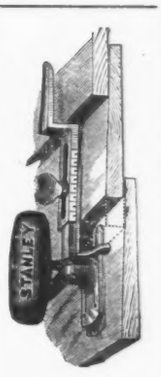
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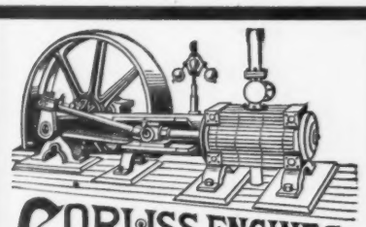
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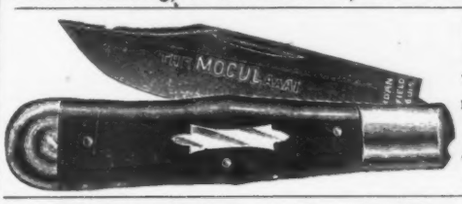
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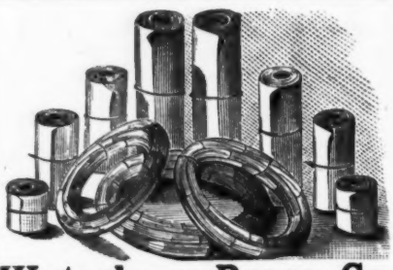
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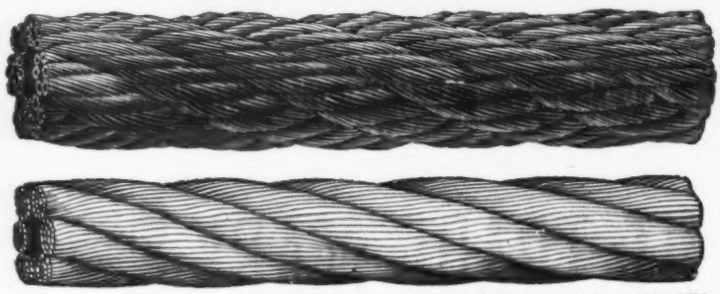
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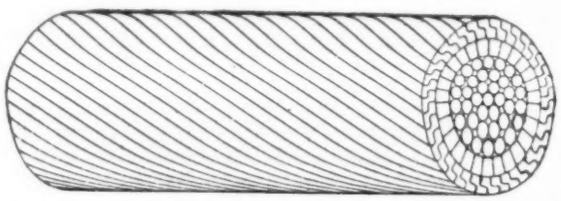
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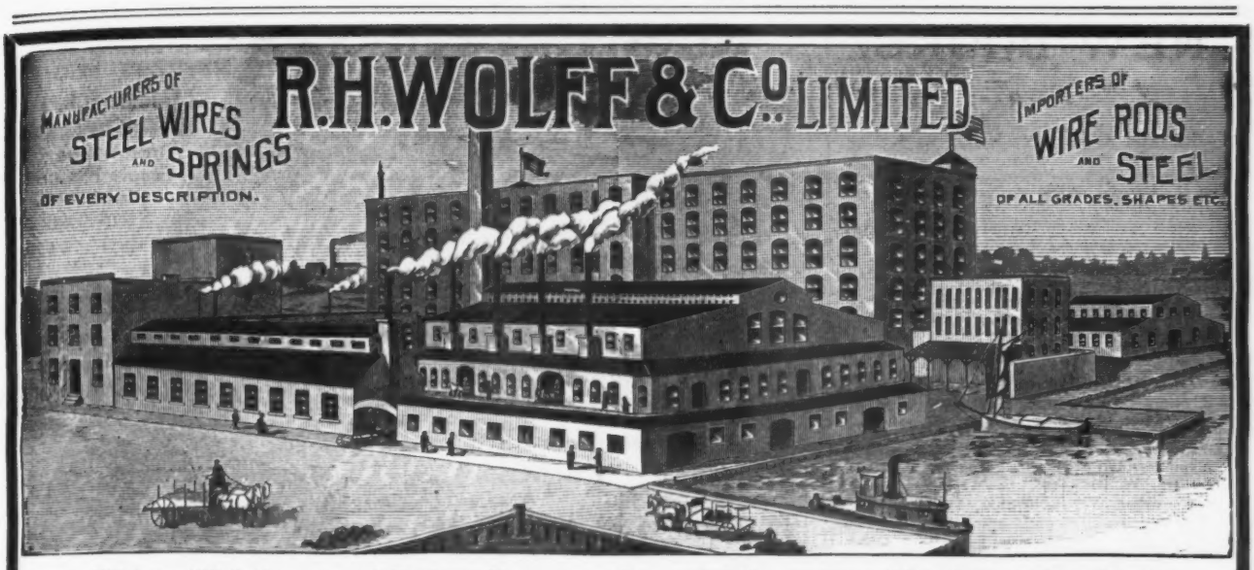
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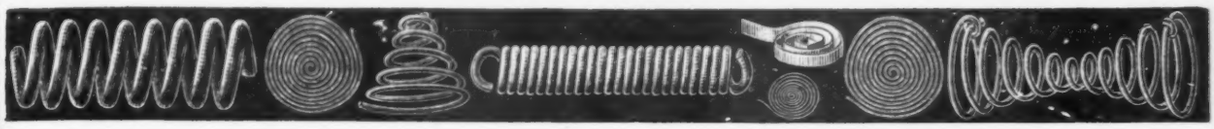
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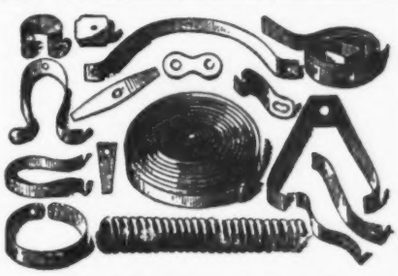
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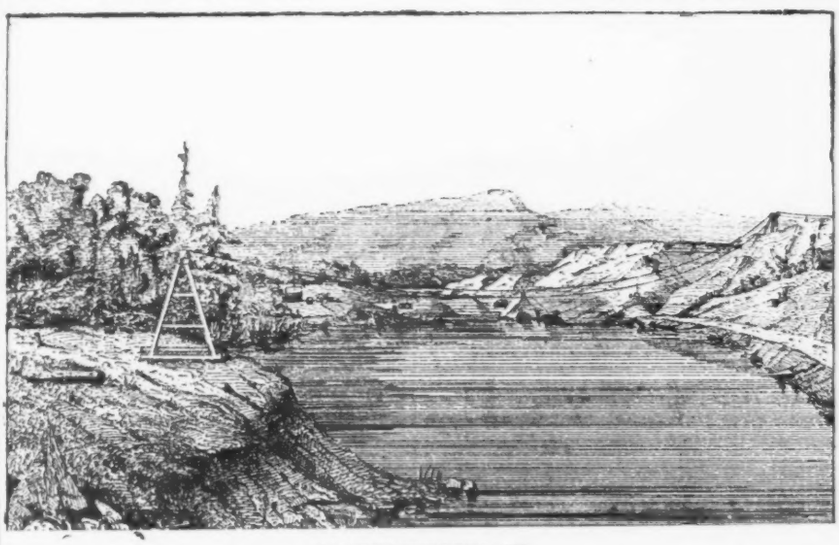


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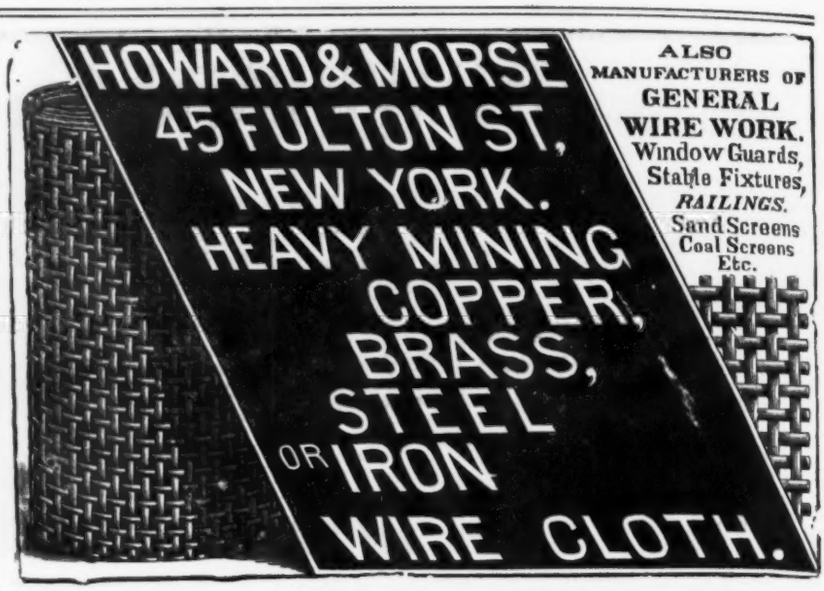
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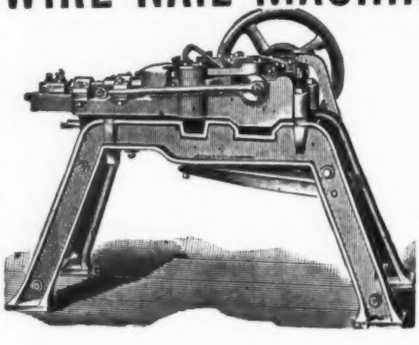
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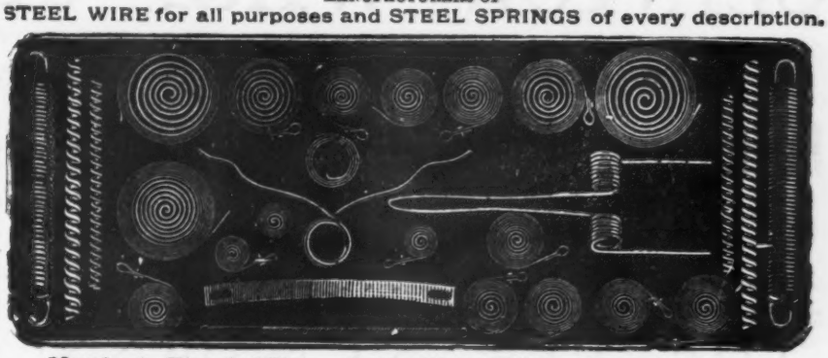
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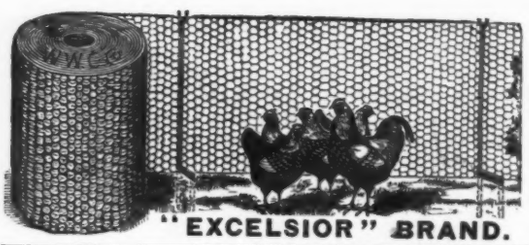
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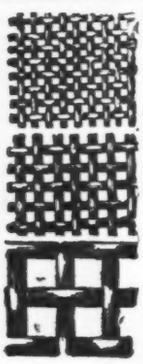
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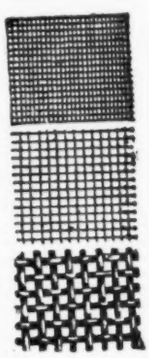
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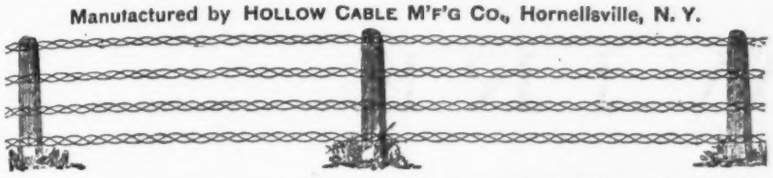
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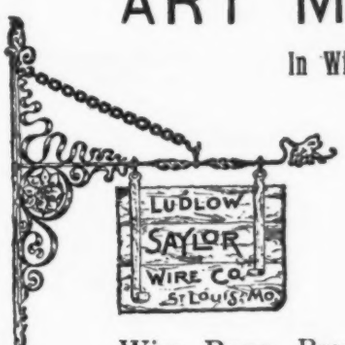
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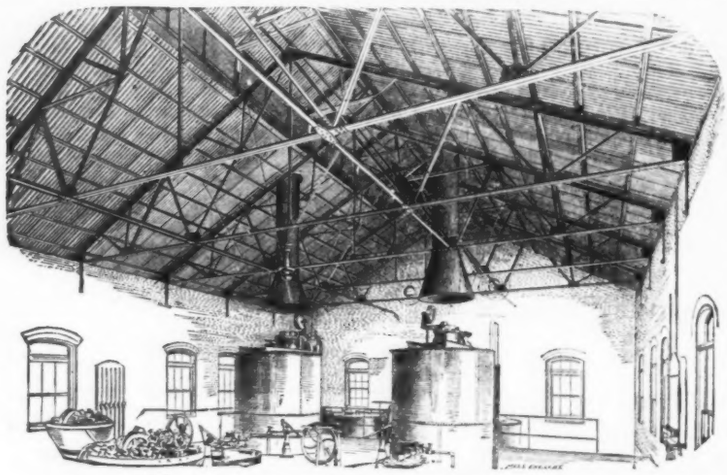
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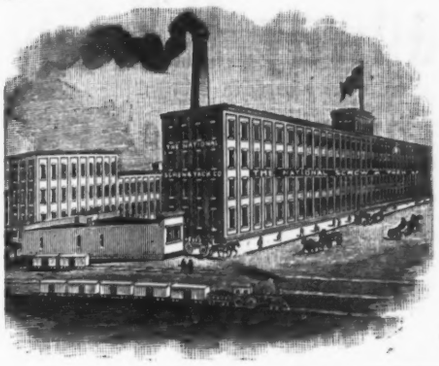
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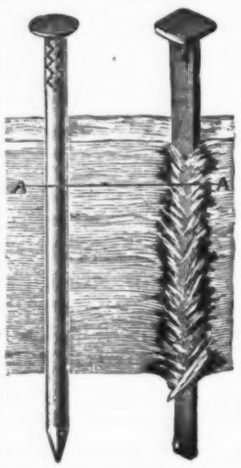
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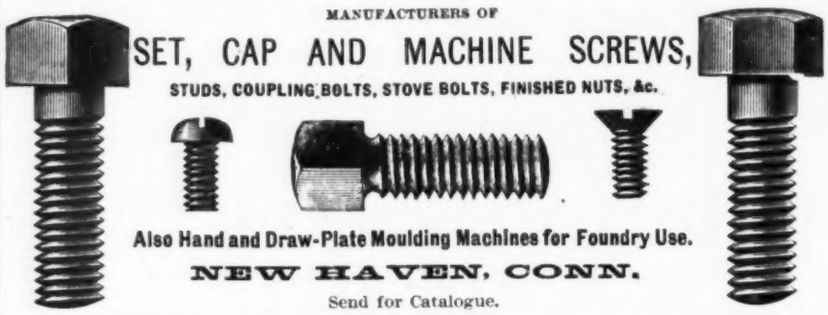
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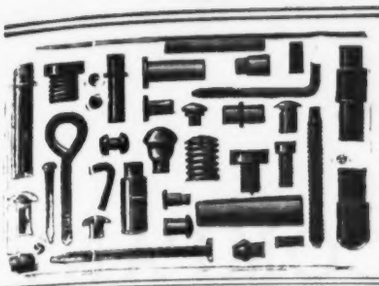
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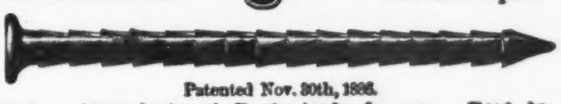
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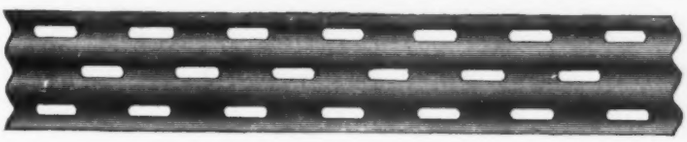
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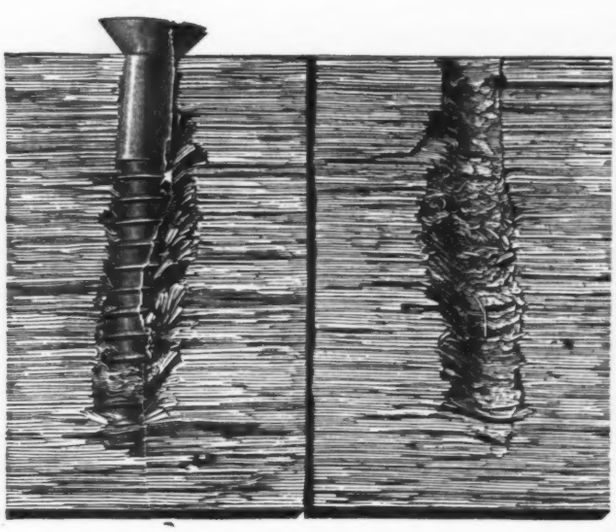
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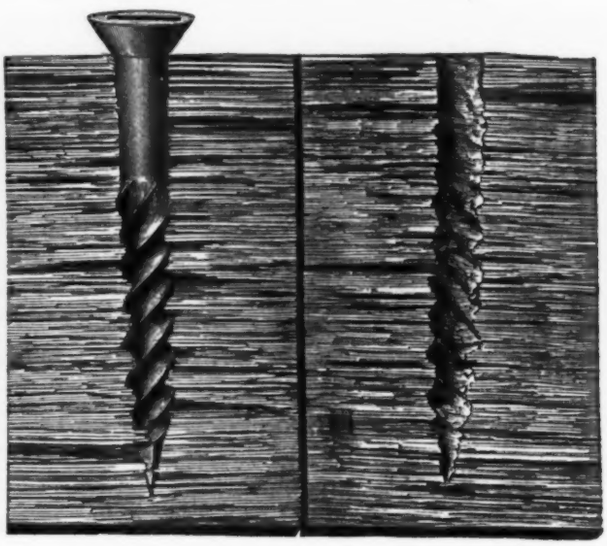
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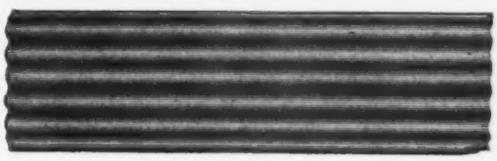
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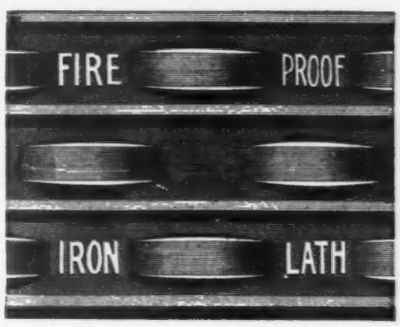
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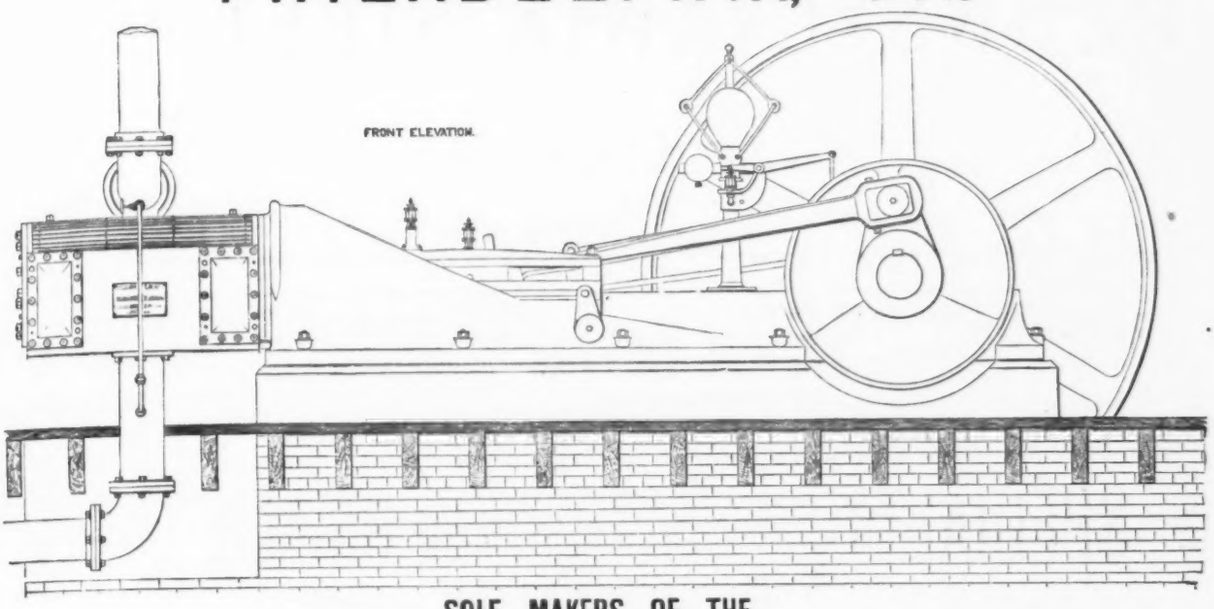
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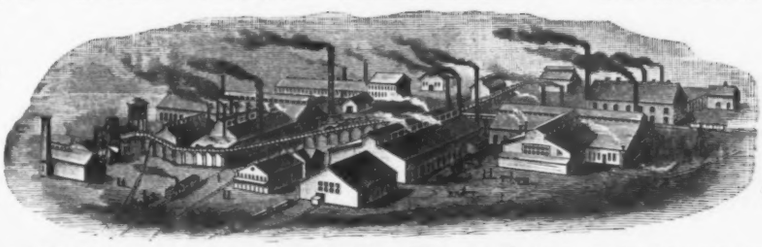
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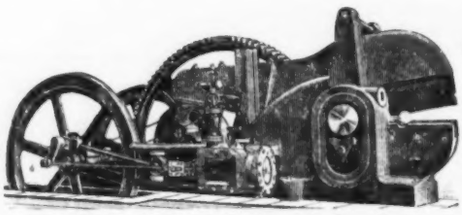
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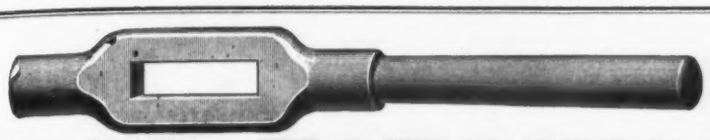
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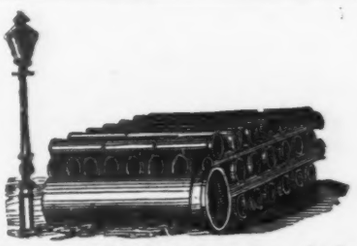
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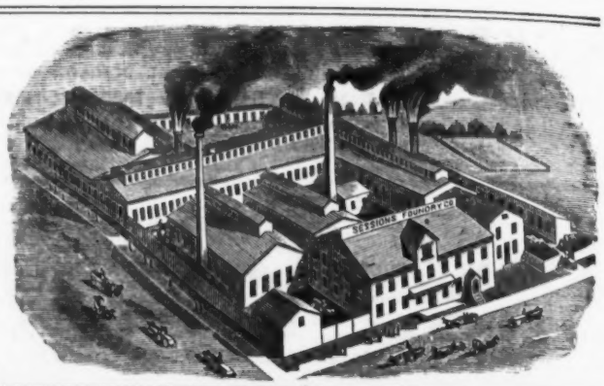
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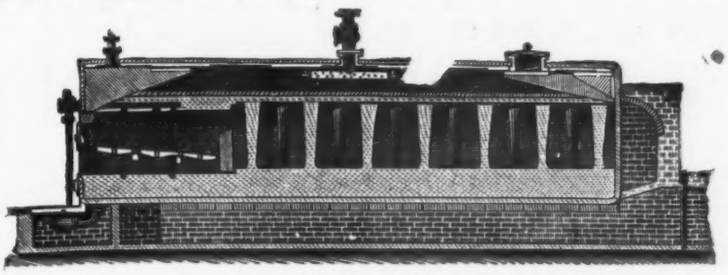
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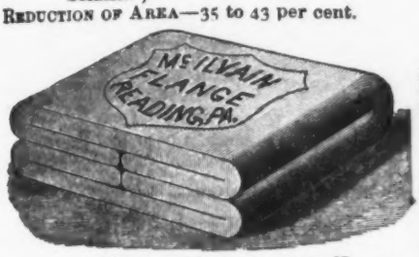
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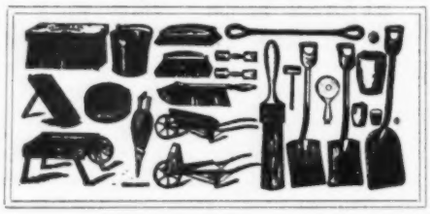
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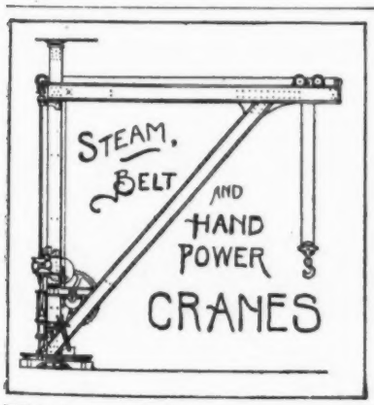
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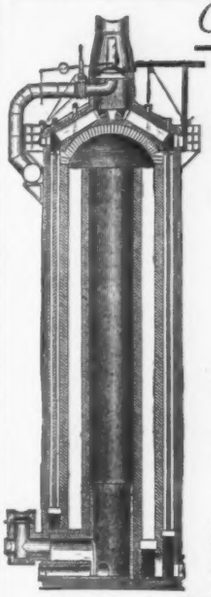
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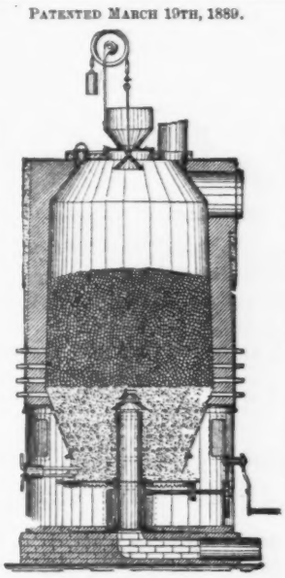


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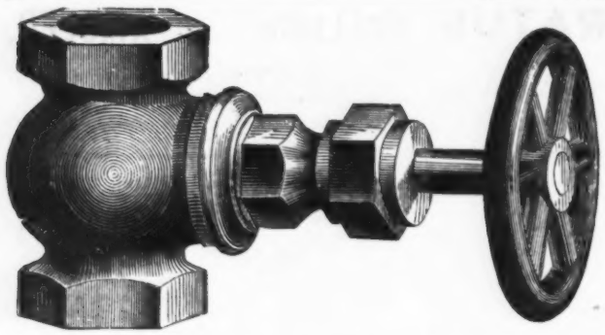
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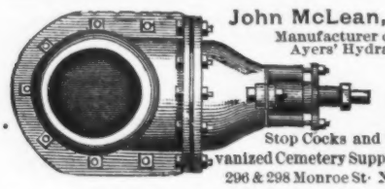
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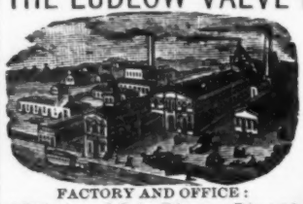
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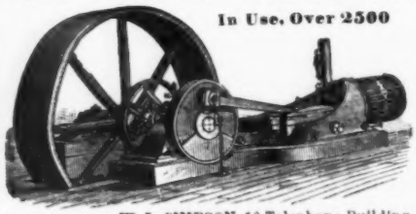


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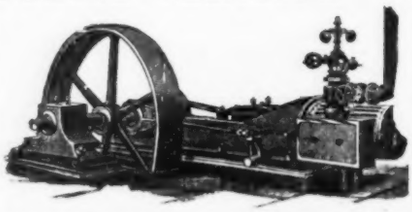


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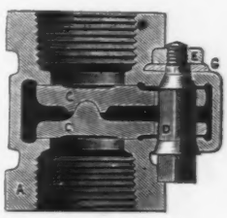


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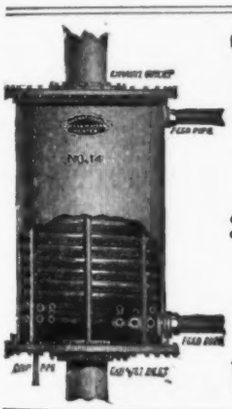
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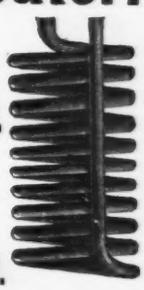
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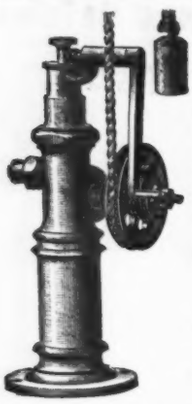
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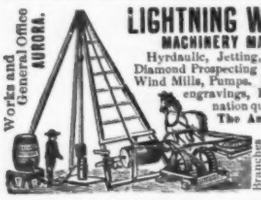
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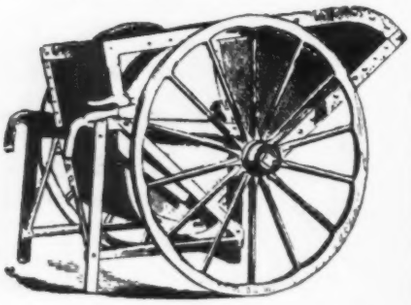
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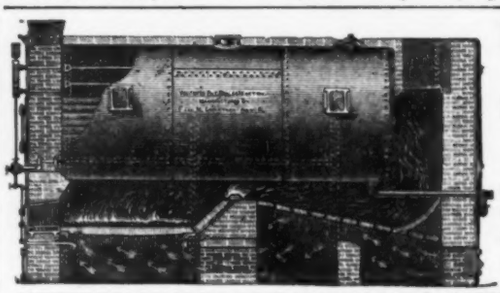
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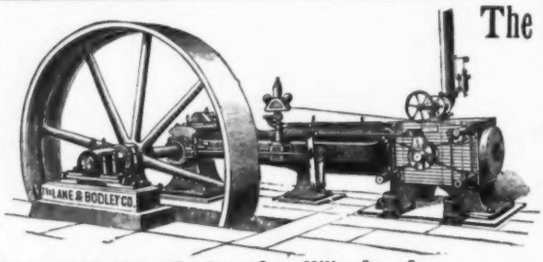
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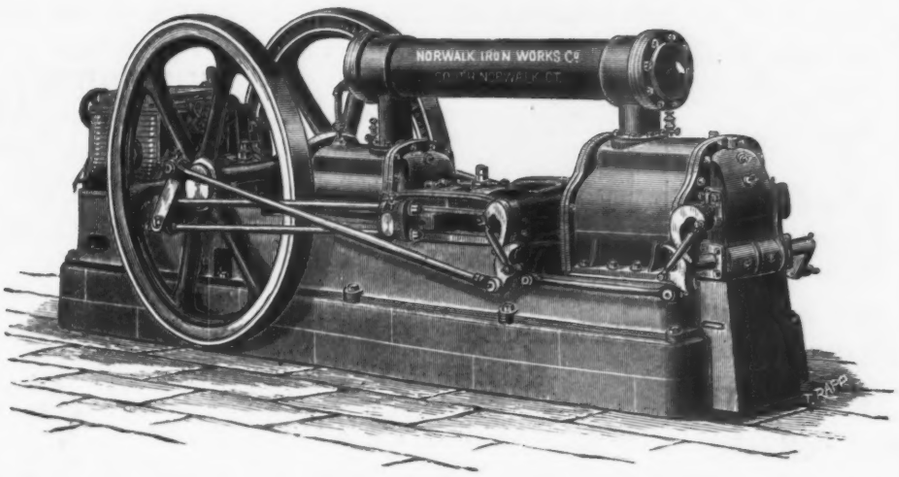
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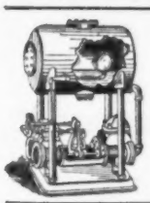
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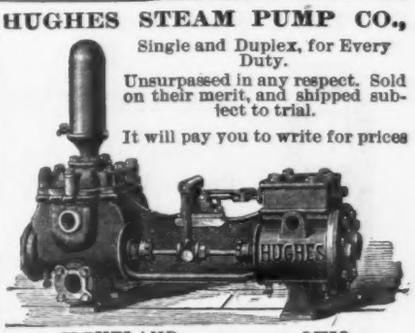
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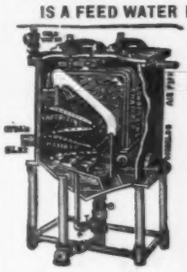


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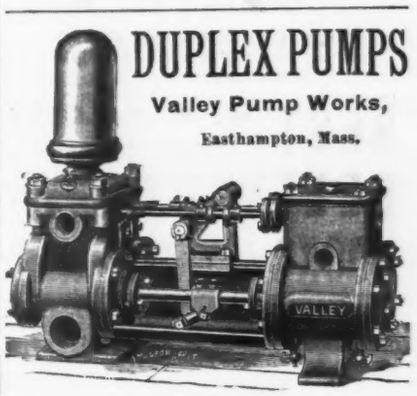
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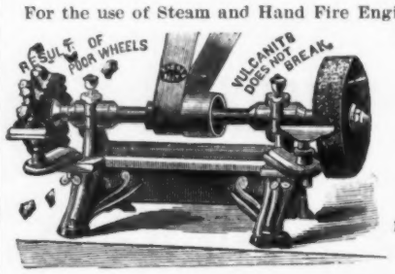
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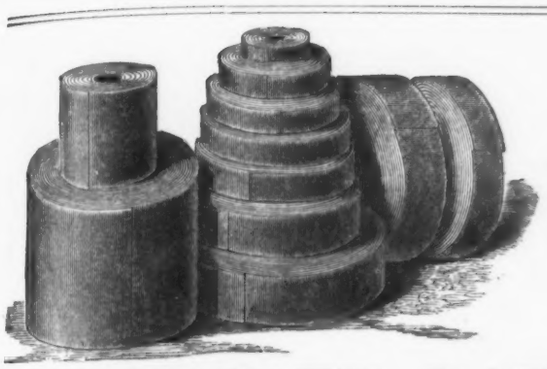
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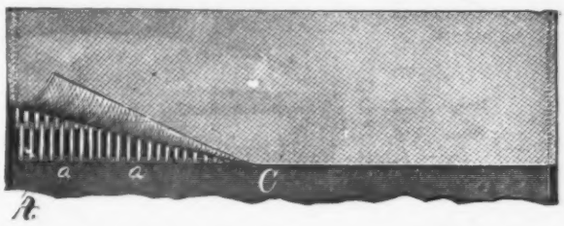
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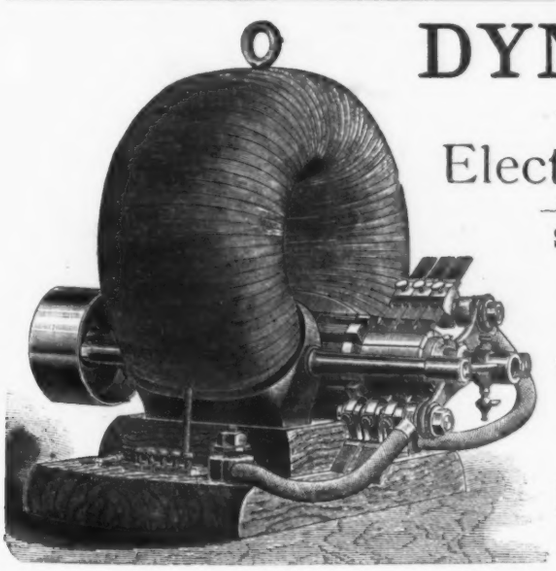
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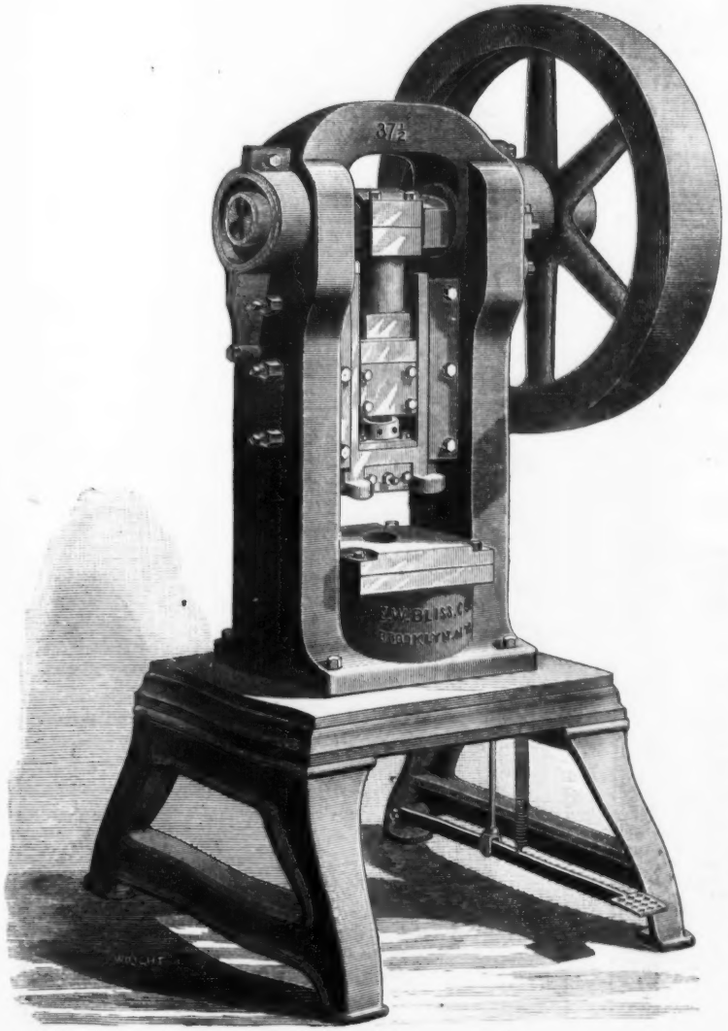
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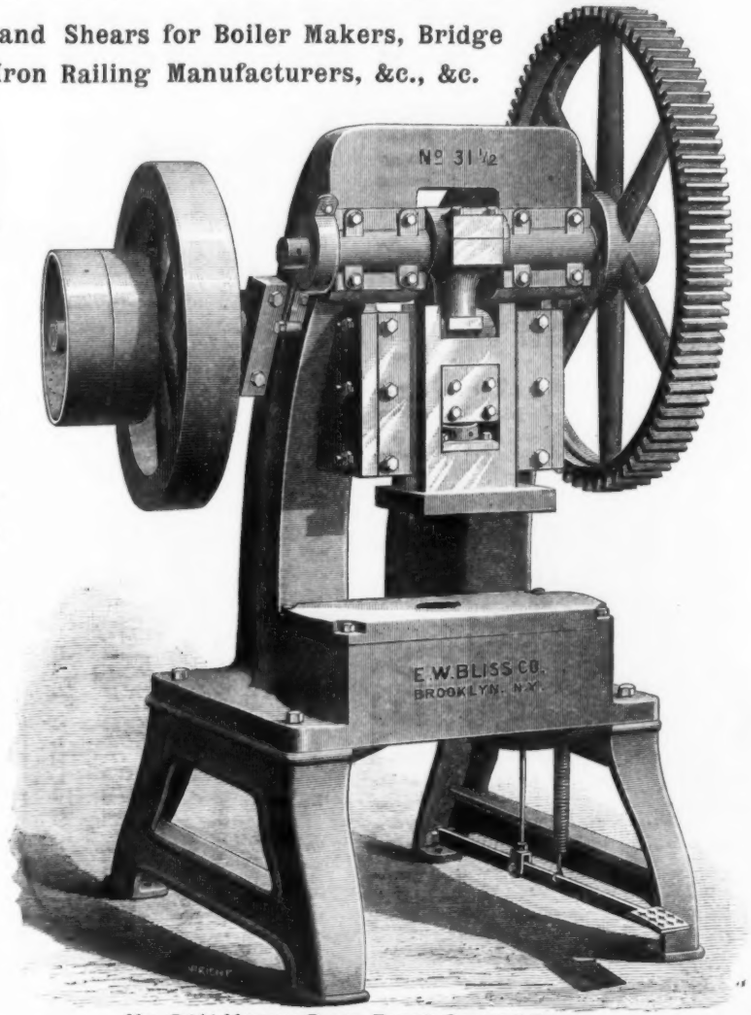
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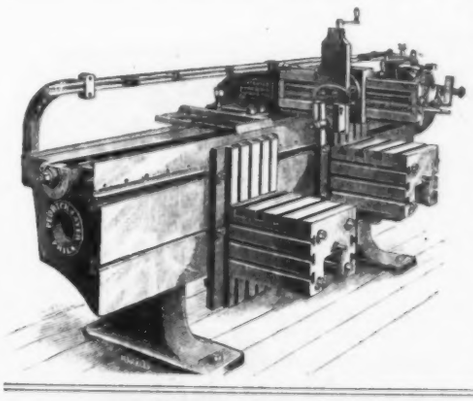
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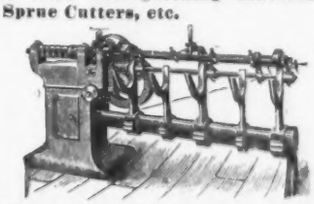


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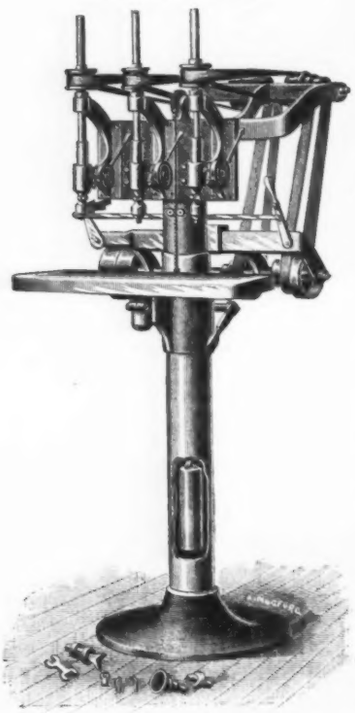
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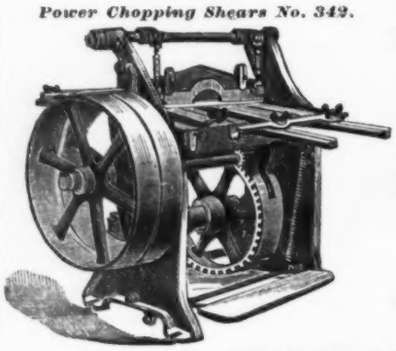
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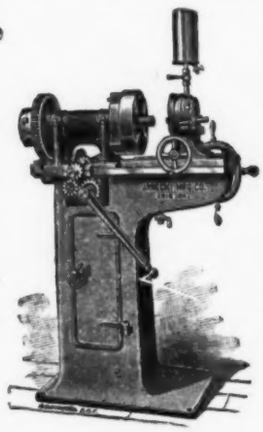
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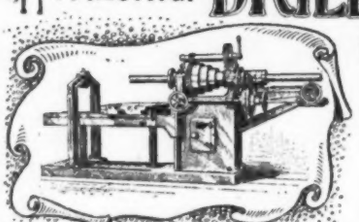
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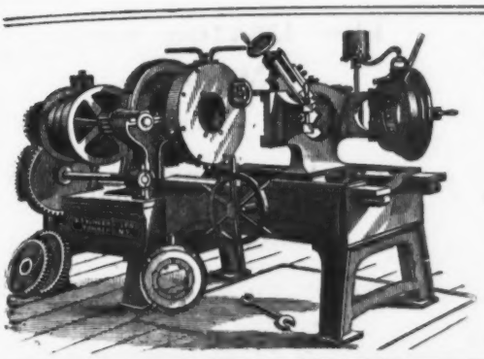


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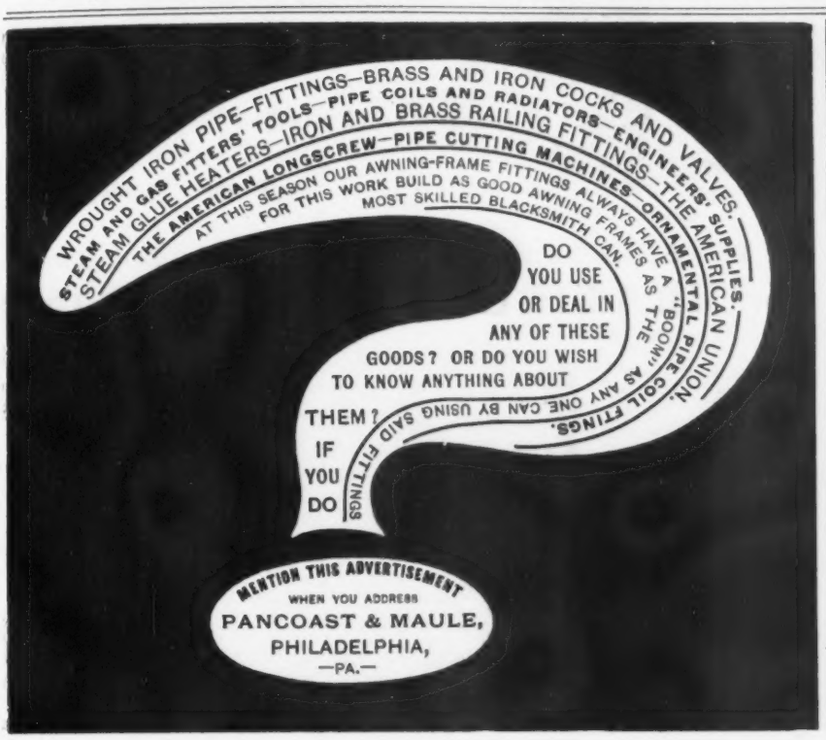
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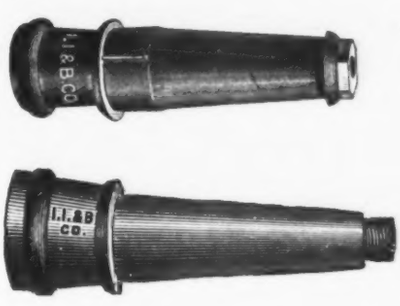
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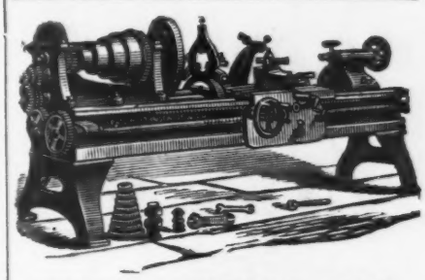
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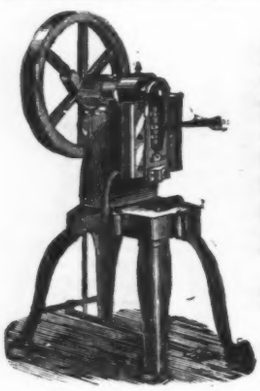
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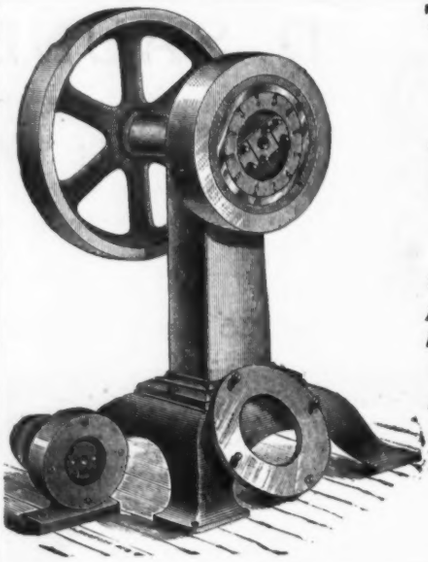
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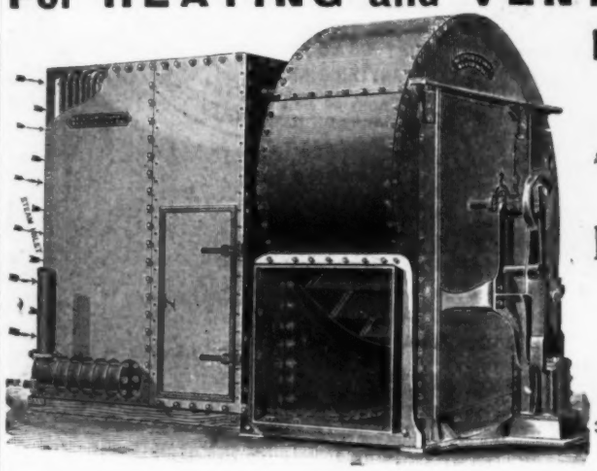
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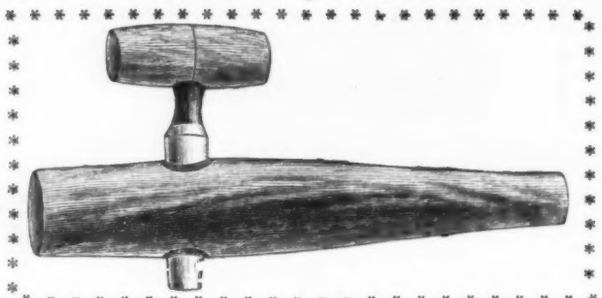
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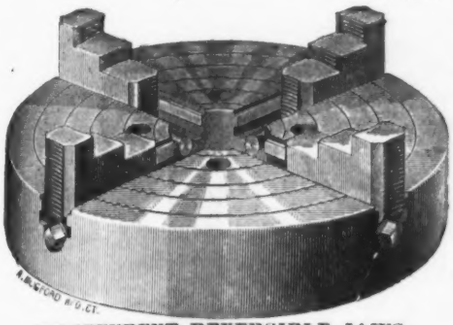
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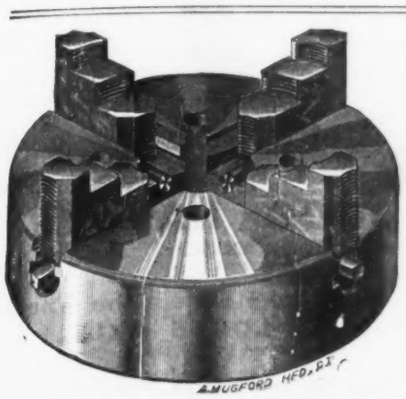
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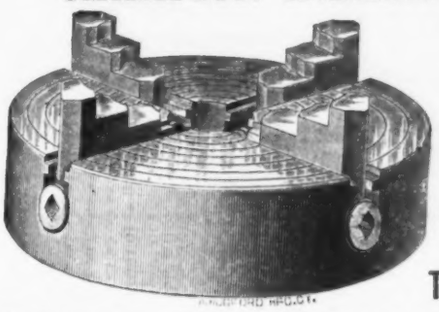
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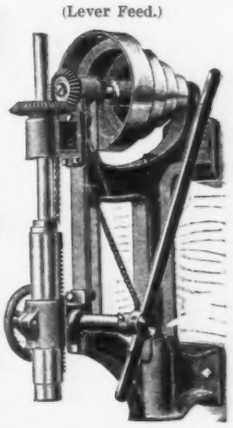
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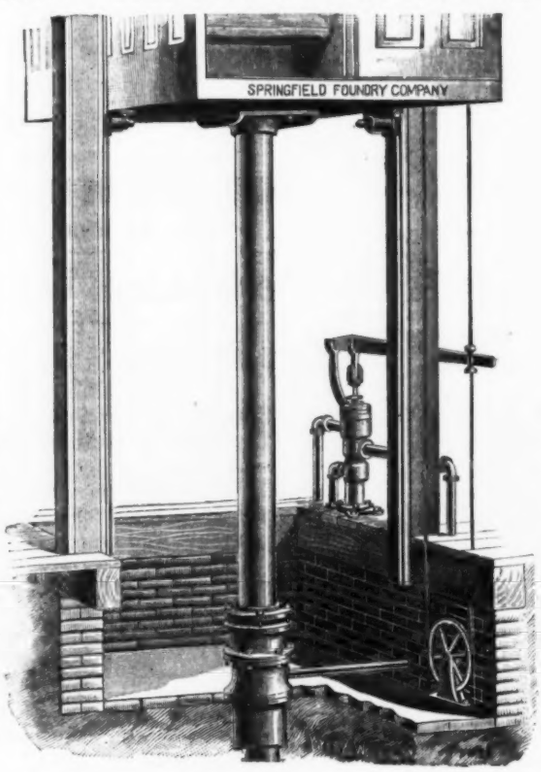
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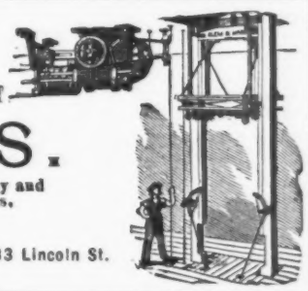
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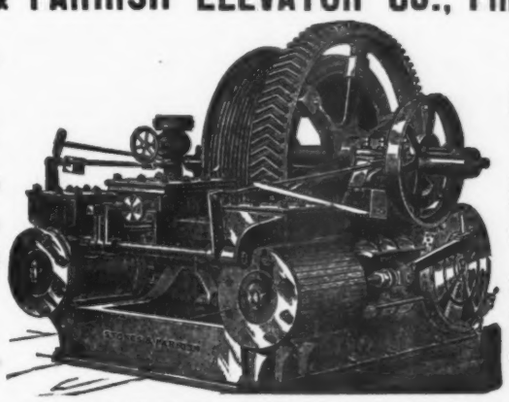
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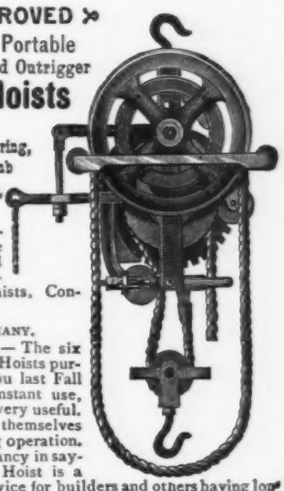
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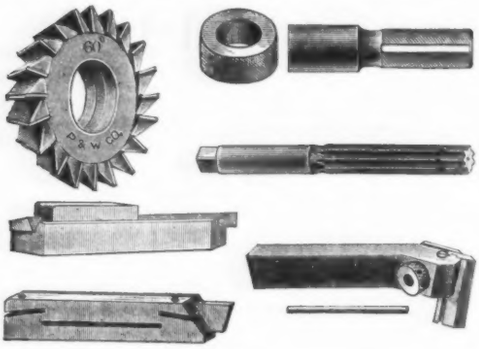
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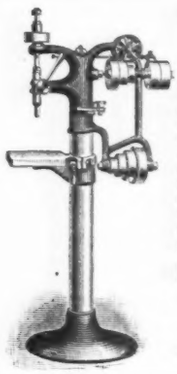
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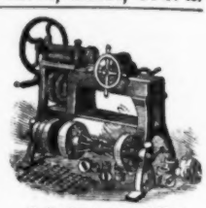
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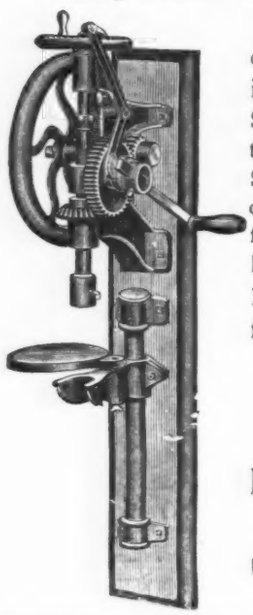


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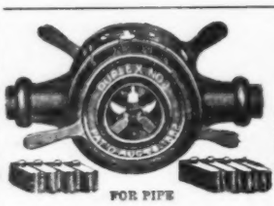
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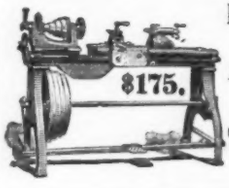
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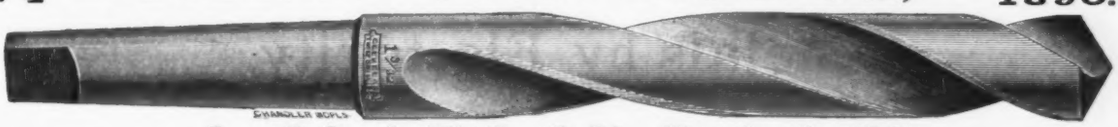
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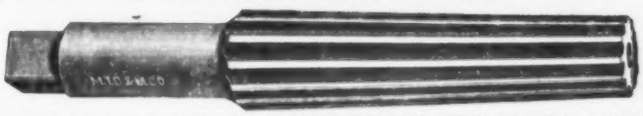
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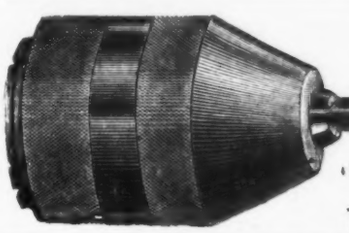




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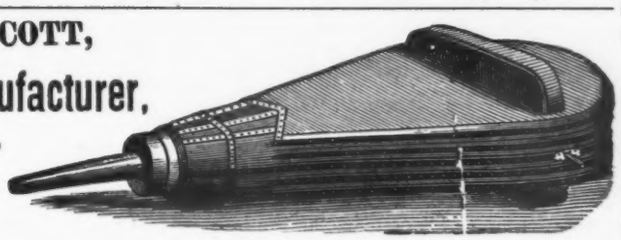
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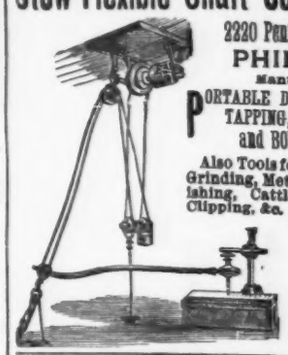
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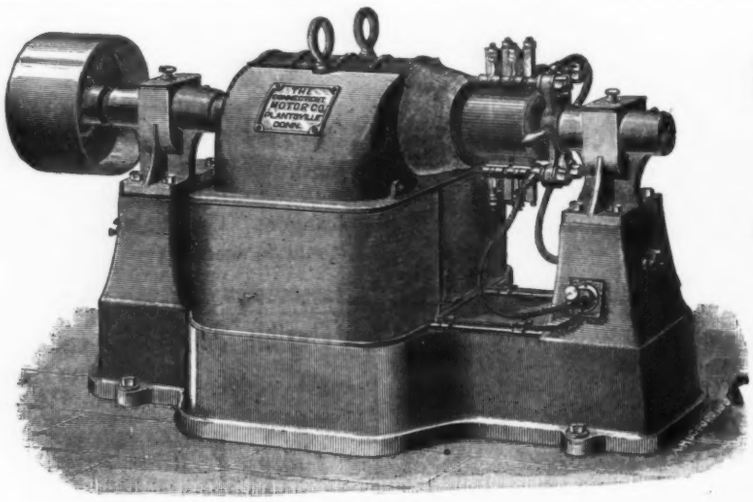
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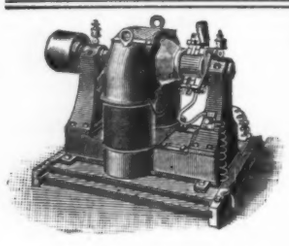
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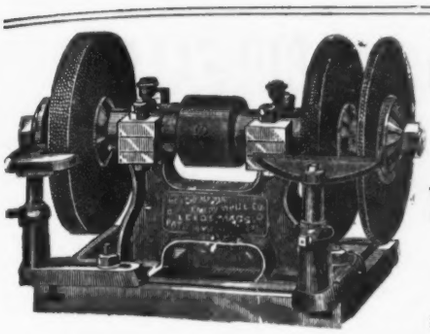
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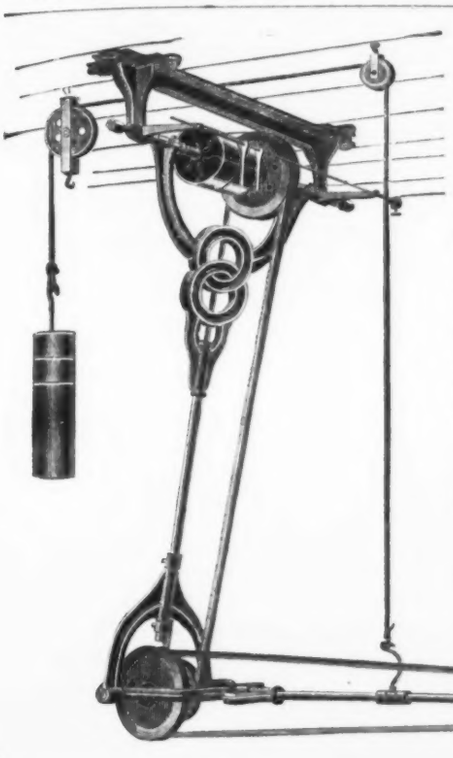
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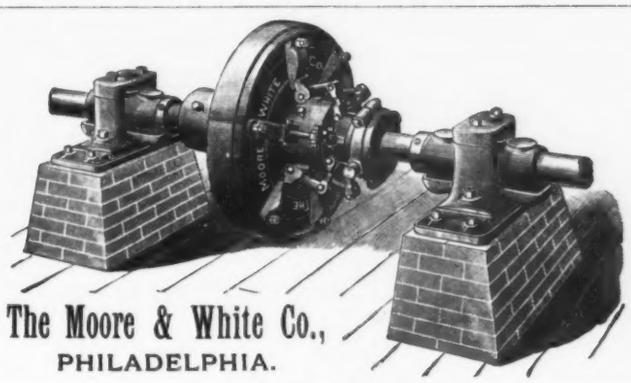
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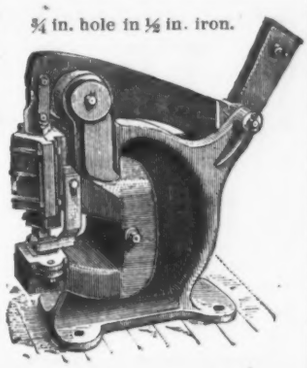
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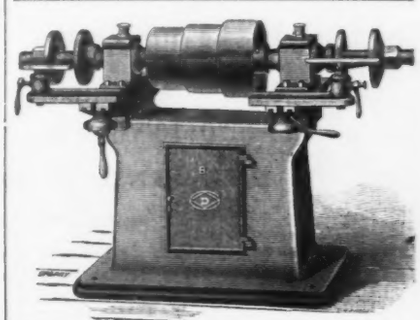
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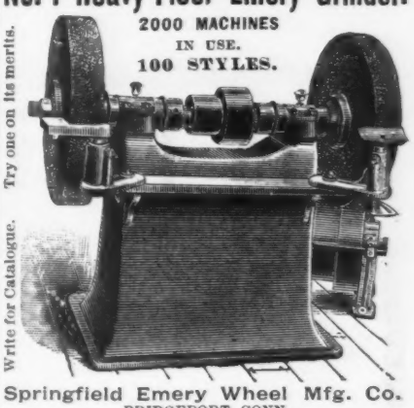
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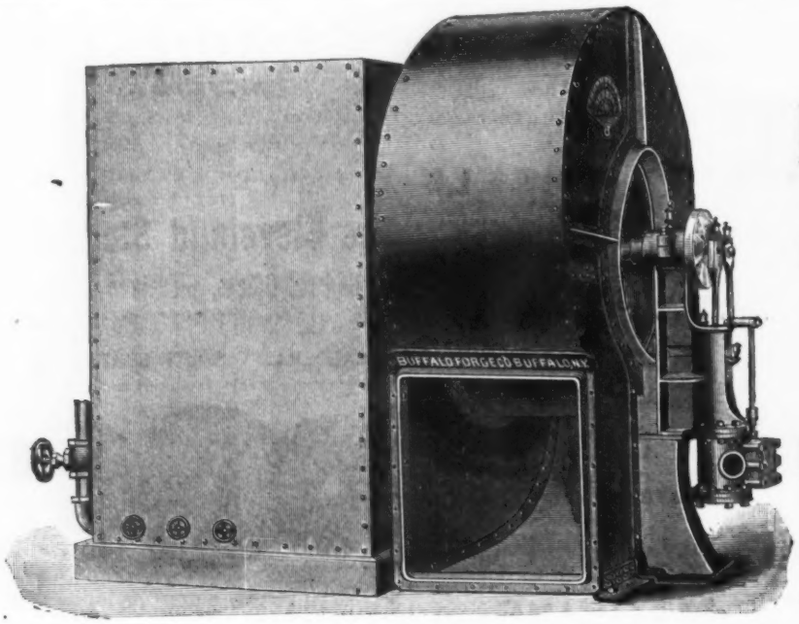


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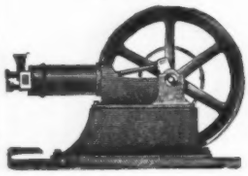


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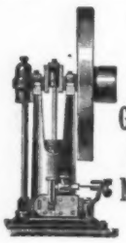
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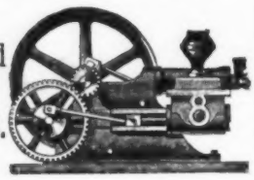


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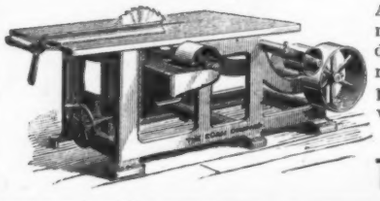
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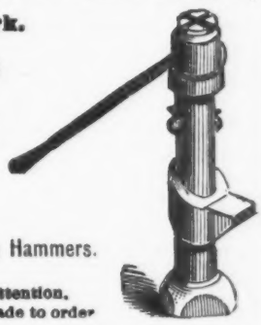
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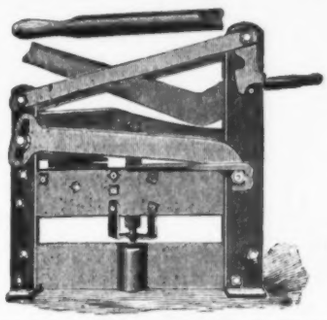




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1 iron Planer, 16 in. x 16 in. x 3 ft.
1 Planer, 20 in. x 20 in. x 4 ft. and 22 in. x 22 in. x 5 ft.
1 " 24 in. x 24 in. x 5½ and 6 ft.
1 " 30 in. x 30 in. x 6 ft. 30 in. x 30 in. x 9 ft.
1 " 32 in. x 32 in. x 10 ft. 42 in. x 36 in. x 12 ft.
" 36 in. x 28 in. x 10 ft.
1 " 60 in. x 66 in. x 24 ft. with 1 head.
1 " 30 in. x 30 in. x 9 ft. with 1 head.
1 " 32 in. x 32 in. x 10 ft. with 2 heads.
1 " 42 in. x 42 in. x 12 ft. with 2 heads.
1 " 50 in. x 50 in. x 17 ft. with 1 head.
1 " 100 in x 100 in. x 18 ft. with 2 heads.
1 Friction Shaper, each 15 in., 20 in., 30 in. stroke.
1 Crank Shaper, each 12 in., 15 in., 20 in. adj. stroke.
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Shapers, Drills, Chucks, &c.; large variety.
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Vertical Engines; one 44 x 36 in., one 42 x 36 in. and one 30 x 36 in.
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Hydraulic Ladle Crane with pumps and accumulators.
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Send for prices for New Planers.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers
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1 11-ft. bed 19-in. Engine Lathe.
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Second-hand, modern style, in good order; to punch ¾ hole in ¾ iron.

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1 Slide Valve Horizontal Engine, 10 in. cylinder, 30 in. stroke, 10 ft. fly wheel.
1 Portable Engine, about 12 H.-P., with boiler.
1 Pump; 8 Large Charging Barrows; 27 Coal Barrows; 2 Ore Barrows; 1 Charging Scale; 6 Plain Cylinder Boilers, 48 ft. x 3 ft.; 3 Tubular Boilers, 14 ft. x 4 ft; Several Water Tanks; Air Chambers and Receivers; Super Heaters, &c., &c., from Blast Furnaces.

For prices and further information address
POULTERER & CO.
26 Bullitt Building, Philadelphia.

Blowing Engine and Furnace Hoist for Sale Cheap.

Blowing Engine, 30 in. steam cylinder.
Vertical, 70 in. air cylinder.
Tremaine Valve, 5 ft. stroke.
Worm Hoist, 24 in drum.

Both have been used in operating a 70-ton charcoal furnace. Replaced in enlarging plant.
Address BLOWING ENGINE,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

For Sale.

50 tons of new castings of Ford Hot Blast Pipe Stoves; can be seen at our works; will sell at 1 cent per lb.; cost 2½ cents.
BUFFALO STEAM FORGE, Buffalo, N. Y.

FOR SALE.

Two Baldwin locomotives, "Hibernia" and "Rockaway," built in 1880 and 1883. Their principal dimensions are as follows:
Gauge, 4 feet 8½ inches.
Fuel, hard coal.
Boiler of iron, 40 in. diameter.
Firebox, 60 7-16 in. long, 30⅛ in. wide, 38½ in. deep.
Tubes of iron, 103 in number, 1¾ in. diameter and 9 ft. 11⅞ in. long.
Weight, in working order, about 60,000 lbs.
Cylinders, 14 x 22.
Driving wheels, when new, 43 in. diameter.
The engines have diamond stacks, one pump, one injector and a separate eight wheeled tender of 1800 gallons capacity

Apply to J. WESLEY PULLMAN, 238 So. Third St., Philadelphia, Pa. or GEORGE RICHARDS, Dover, N. J.

WANTED.

New or second-hand Combined Punch and Shear to punch and shear 1¼ inch and cut 6 inch Angle Iron. Also Traveling Crane about 35 feet span, 5 tons capacity. Address
"F. M.,"
Office of *The Iron Age*, 220 S. 4th St., Philadelphia

OLD METAL WANTED.

Heavy Brass, Copper and Brass Turnings; state quantity and price for spot cash.
E. A. WILLIAMS & SON,
107 Plymouth St., - - Jersey City, N. J.

FOR SALE.

27 Gross Tons Steel Rails, 4 feet long and over.

SIMON & BLONDER BROS.,

OFFICE and Yard: 158 and 160 WEST CHICAGO AVENUE,

CHICAGO, - ILLINOIS.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address.
"MISSOURI,"
office of *The Iron Age*, 220 S. 4th St., Philadelphia.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.
WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

FACTORY FOR SALE.

A commodious and well-built brick Shop, 40 ft. x 120 ft., two stories high, with first floor clear of posts; engine and boiler house attached, fitted with shafting, heating apparatus, &c.; with additional lot 55 ft. x 140 ft. connected, all for sale at a low price; reason for selling, new shop twice the capacity being built. Terms and prices can be obtained by referring to
THE NATIONAL PIPE BENDING CO.,
New Haven, Conn.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address
"SPECIALTY" Box 818,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

Valuable Mineral Property, located in Virginia. For particulars, address
D. A. A. KEYSER,
Backbone, Alleghany Co., Va.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

FOR SALE.

The well-established business, known as THE GAYLORD, CROSS & SPEIRS CO., located in Waterbury, Conn., is offered for sale. This plant is on the corner of Benedict and Meadow Sts.; consisting of land, brick and frame buildings, &c.; the foundry and all machinery goes with sale; there is between $10,000 and $12,000 worth of machinery that goes with the business. The lot fronts on two streets, 164 feet on Meadow and 219½ feet on Benedict Sts.; there is ample room for another large machine shop or any kind of manufacturing business without being cramped for room; this plant is only two minutes' walk from depot. The reason why this valuable property is put in the market at the price asked is because the owner is West and cannot give the attention that it requires. Take the business in consideration, both in foundry and machine work, it is a rare opportunity that does not occur every day, where one can buy an established business for the low figure, $45,000. The land and buildings alone are worth the price I ask, without the machinery. Address

L. J. BOWEN, Receiver,
Waterbury, Conn.

COAL at **50 cents per ton for twenty years; $1,000,000 cash,** and desirable location, with railway facilities, at **$100 PER ACRE,** worth $500, as special inducements to encourage new manufacturing industries

MEANS that **PITTSBURG, Kansas,** with its unequaled railway connections, is the best point on this continent for the establishing of smelting works, foundries and machine shops and any kind of manufacturing industry consuming coal and looking to the U. S. and Mexico for a market; guaranteeing

PROSPERITY to every dollar invested and every man employed. Gas, 75 cents per thousand. Taxes 3 per cent. on a 30 per cent. valuation; four trunk railways; $7,000,000 invested in industrial enterprises, best of free schools, property cheap. **Now**

TO PITTSBURG **is the time to invest. Come and investigate.** Write for information and Maps. **PITTSBURG TOWN CO.,** Pittsburg, Kan. A. W. GIFFORD, General Agent.

FOR SALE.

A Corliss Upright Steam Engine, 40 in. cylinder, 42 in. stroke, with 40 ton fly wheel, made by Corliss. Also a train of 24 in. Rolls for rolling Steel Plate 16 in. down to 16 gauge; the housings are heavy enough for a three high 30 in. train; they were made for a 30 in. Blooming train; both engine and train are in first-rate condition, and can be seen at the Old Norway Steel and Iron Works, South Boston; any communication addressed to THOS. GOGIN, 61 Thomas Park, South Boston, will have prompt attention.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.

THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

FOR SALE.

$5000 stock of Hardware, Lumber and Stoves, with good business established in centre of Southern Illinois fruit belt.

T. B. RHODES, Anna, Ill.

FOR SALE.

An old-established Wholesale General Hardware Business, located at Burlington, Iowa. Has the advantages of both rail and water communications, and one of the best distributing points on the Upper Mississippi River; good trade already established and am to-day doing a good business; stock on hand about $70,000; have five salesmen on the road, do business in Western Illinois, Northern Missouri, Eastern Nebraska, Southern Dakota and Minnesota and a large portion of Iowa.

The largest portion of my trade comes from Iowa The territory can be extended and trade increased if desired. This is a rare opportunity for any one wishing to step into a good business already thoroughly established. Reason for wishing to sell out—poor health. For any information desired pertaining to the business and location, I would refer you to Ross & Fuller, 33 Chambers St., N. Y.; Clement M. Biddle & Co., Philadelphia; the National State Bank of Burlington, Iowa, or the undersigned

LYMAN H. DRAKE.

SOUTHERN CALIFORNIA.

CLIMATIC PARADISE OF THE U. S.

No Snow. No Cyclone.

A Store For Sale.

Good will and stock of about $4,000 in Hardware' Crockery and House Furnishing goods. Price of the two-story brick building (21 x 48 feet), garden and yard (together 12,131 square feet) $7,000. The city of Anaheim (population 1,500), the oldest settlement of Southern California, is surrounded by an extensive farming country, has the finest drinking water and has for healthfulness no rival on the coast. It is situated about 26 miles southeast of Los Angeles and 14 miles from the Pacific Ocean. The store lies between the Southern Pacific and Santa Fé Railroad depots. Address: Charles Pamperl, Anaheim, Orange County, California.

FOR SALE.

Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock, $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

Address "BEST,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
338 and 342 E 7th St., St. Paul, Minn.

ESTABLISHED BUSINESS.

A clean stock of hardware, factory supplies, housefurnishing goods, stoves and tinware, located in a growing city of 16,000 inhabitants near New York, doing a business of $30,000 annually; business could be increased; would sell stock at market prices; good reasons for selling. Address

"CHARLES,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

CAN WE SERVE YOU?

If you have a stock of Hardware to SELL in any city or town in the U S

If you want to BUY a stock of Hardware in any city, town or village in the country.

If you want a traveling salesman for Hardware.

If you want a position as traveling salesman for Hardware.

If you want a tinner.

If you are a tinner and want a position.

Write the MERCANTILE EXCHANGE,
Macon City, Missouri.

All correspondence confidential.

135 ACRES OF LAND

in Wyandot County, Ohio, to exchange for a Stock of Shelf Hardware in Ohio. Address

A. J. FREDERICK,
Carey, Ohio.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A quarter interest in the largest hardware establishment in a growing Western city of nearly 100,000 inhabitants, doing a business of $250,000 annually. Address

"2943,"

office of *The Iron Age*, 66 and 68 Duane street, New York.

AT A SACRIFICE.

Paying Hardware and Paint Business, in large manufacturing city, 25 minutes from New York; stock $6000; poor health reason for selling; a rare chance for one wishing to buy. Address

"SACRIFICE,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.

Competent and reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
21 Grand Ave., Brooklyn, N. Y.

WHY NOT

send description of any article or material you wish to sell to one who makes it a specialty of putting the seller in direct communication with the buyer, and save commisions. Write for particulars and references anyhow to

H. H. MANSFIELD,
52 Wall street, New York.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

Capital Wanted.

$50,000 wanted by parties starting a Steel Rolling Mill and Forge, with Iron and Steel Sheets as part of a varied product.

Address

"STEEL MILL,"

office of *The Iron Age*, 220 So. 4th Street, Philadelphia.

What Have You You Want Sold?

A thoroughly practical business man, who will start on a business trip through the Northwest and West about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address

"TWO-THIRDS,"

office of *The Iron Age*, 66 and 68 Duane st., N. Y.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

FOR SALE.

On reasonable terms, an improvement in Butt, Strap, T and Gate Hinges, patented Sept. 16th, 1890. Strong and durable. Can be packed in boxes as shelf hardware. Manufactured and galvanized at one-fourth the price of plain iron now in use. Address "B.," 663 N. 13th Street, Philadelphia, Pa.

ATTENTION!!

FOR SALE.—A strictly first class manufacturing plant, brick buildings, heated with steam, substantial and very best every way, suitable for any manufacturing business; everything new seven years ago, including engine, boiler and shafting, also machine shop tools and foundry fixtures complete, which purchaser can take or not, as desired. Excellent shipping facilities by five railroads and boat daily; railroad switch adjoining property; a bargain for immediate purchaser. Business thoroughly established, wide reputation, excellent investment; more capital required; I might take a partner. Address "OWNER," Fishkill-on-Hudson, N. Y.

Manufacturers desiring to secure trade in

NEW ORLEANS

and the

SOUTH

through a long established commission house, please address P. O. Box No. 186, New Orleans, La.

Mexico, Central & South America.

Gentleman, some years established in New York as Buyer for big South American concern, controlling a good trade, and intending to make shortly extensive and prolonged trip over Mexico, Central and South America, invites correspondence with a few first-class manufacturers, in view of representing them direct in those markets. Address "SOUTH-AMERICAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

LOCOMOTIVE FOR SALE.—BARGAIN.

Pole Road Locomotive, saddle tank type, built by Richmond Locomotive Works. 2 cylinders, 8 x 12 in.; gauge, 5 ft. 2 in.; almost new. 6 Box Cars, 16 ft. long, 8 ft. wide, 2 ft. high. Also Armington Sims Engine, 15½ in. x 24 in. cylinder. Automatic Atlas Engine, 16 in. x 24 in. cylinder., with 75 H.-P. Horizontal Tubular Boiler. Plain Slide Valve Engine, 16 in. x 24 in. cylinder. 15 H.-P. Hoisting Engine and Boiler, 8 in. x 16 in. cylinder. Worthington Duplex Steam Pump, 8 in. suc., 6 in. discharge. Knowles No. 7 Steam Pump, 6 in. suc., 10 in x 20 in. x 24 in. cylinder. 2 Hydraulic Presses and Pumps, 10,000 tons pressure each. Apply G. W. SHANKS, 28 Light St., Baltimore, Md

To Capitalists Interested in the TIN PLATE Industry.

An Englishman, well known in the trade, having had over 20 years' experience in Tin Plate business, 15 years of same being in the capacity of Manager and General Manager, desires an engagement. Has an extensive knowledge of erecting plant, having superintended the erection of two of the largest Tin Plate and Tin Sheet Works in Staffordshire, England. Address "TIN PLATE," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

PLATE MILL.

FOR SALE CHEAP, 26 in. Plate Mill; Rolls 92 in. long; all in good order. For information apply to

MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

Mining Machinery.

FOR SALE—Ingersoll Air Compressor, 14 in. x 24 in.; Air Receiver, 4 ft. x 12 ft.; Drills, 3 in.; Double Friction Hoisting Engine, cylinders 10 in.; Pumps, one Worthington, 12 x 6 x 10 (good as new); Boilers, Pipe, Tools, &c., &c.; all in first-class condition and to be sold. Address "MINER,"
Midvale, New Jersey.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

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Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

WOLCOTT & WEST, SYRACUSE, N. Y.

A New and Splendid Companion to all the Metal Industries.

Fully abreast of the latest inventions and discoveries, as well in the largest and coarsest as in the smallest and finest of metal work.

JUST READY.

Price, $2.50.

Free of Postage to any address in the world.

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Metal Worker's Handy Book

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Being a collection of Chemical Formulas and Practical Manipulations for the working of all the Metals and Alloys, including the Decoration and Beautifying of articles manufactured therefrom, as well as their preservation. Edited from various sources by William T. Brannt, editor of "The Techno-Chemical Receipt Book" and "The Metallic Alloys." Illustrated by 63 engravings. One volume, over 500 pages, 12mo, elegantly bound in scarlet cloth, gilt, closely printed, containing a vast amount of valuable matter on all the Metals and Alloys, not to be found in any other book in the English language.

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Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

BY A PHILADELPHIA Tin Plate and Metal House, on or after January 1, 1891, a Salesman acquainted with the Tin Plate and Metal Trade throughout Wisconsin and the Northwest, to make his headquarters at Chicago or Milwaukee. Address, with reference, "TIN PLATE," office of *The Iron Age*, 220 South Fourth St., Philadelphia.

COMPETENT SALESMAN to sell Malleable Iron and Steel Castings. Give age, experience and salary wanted. Box 1191, Philadelphia Post Office, Pa.

PIG IRON SALESMAN well acquainted with trade in Pennsylvania, New York and New Jersey that use Lehigh Iron. State age, salary wanted, where last employed; give references. Address "T. H. C." office of *The Iron Age*, 220 So. Fourth St., Philadelphia.

JANUARY 1st, 1891, a Salesman thoroughly acquainted with the Tin Plate and Metal business, to travel Northern and Central Ohio, Indiana, Illinois, Northwestern Pennsylvania, making Pittsburgh as headquarters. To a suitable person a liberal salary will be paid. Address Box 477, Philadelphia Post Office.

MAN OF EXPERIENCE as Foreman or assistant foreman in shop building special heavy machines; state age, experience, references and wages expected. Address "SPECIAL MACHINERY," office of *The Iron Age*, 66 and 68 Duane St., New York.

MECHANICAL ENGINEER with experience in elevator work and competent to do estimating, laying out, etc., in the office and works. Address P. O. Box 211, Chicago, giving age, experience, references, salary, etc.

TREASURER WANTED.—An experienced financial manager who can control $10,000 to take the position of Treasurer, who has ability and experience in manufacturing. The works are situated in one of the most flourishing and enterprising cities in the Northwest. First-class references given and required. Address "A. D.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

FIRST-CLASS STOVE and Hardware Salesmen to take one good selling specialty on a commission. Address W. H. PECKHAM, Minneapolis, MINN.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING CO., Cuba, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

WANTED.—An engagement as Traveling Salesman for a manufacturer of first quality Hardware specialties; ability, acquaintance and experience with the trade satisfactory; references as desired. Address "WM. H.," office of *The Iron Age*, 59 Dearborn St., Chicago.

POSITION as Secretary and Treasurer of an Iron and Steel Co.; have received a thorough technical education; have 10 years' practice in management of iron and steel works, and 10 years' experience of importing iron, handling considerable amounts of money and being thoroughly familiar with the market; can give the best references. Answer to "PIG IRON," Box 18, office of *The Iron Age*, 66 and 68 Duane St., New York.

AN EXPERT MECHANIC of large experience and of considerable private means, 40 years of age, familiar with designing and perfecting steam, electrical and hydraulic machinery, is open for engagement with inventors and builders of new or complicated machinery, in the Eastern or Middle States; electric machinery preferred. Address "TEMPLE," office of *The Iron Age*, 66 and 68 Duane st., N. Y.

BY A YOUNG MAN, a position as Foreman of Bench or Light Machinery Foundry; am a practical bench and floor molder; have had five years' experience as foreman; am advanced in all improvements of the foundry; am satisfied to take hold of shop and instruct boys, and guarantee to run shop successfully with them; or will take jobbing work by weight or contract. Address "WEIGHT," office of *The Iron Age*, 66 and 68 Duane St., New York.

OWING to the closing of The Elmira Rolling Mills I am out of employment, and would like a position as Shipping Clerk in a Rolling Mill; I have had 10 years' experience in shipping merchant and structural iron: references, The Elmira Rolling Mill Co. CHARLES J. ROOT, Elmira, N. Y.

HARDWARE.—A practical Lock and Hardware Manufacturer desires position as Superintendent or Manager; is capable of looking after all departments; would like to hear of responsible parties who are about to start a Lock or Hardware manufactory. Address "NEW BRITT," Box 400, office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MARRIED MAN who has had ten years' experience at bookkeeping, labor accounts, cost sheets of jobs, &c., in general machine shop, boiler shop and foundry business; thoroughly reliable and acquainted with the business, clerically, in all its details. Address "CLERICAL," office of *The Iron Age*, 66 and 68 Duane street, New York.

BY A COMPETENT ROLL TURNER; good references. Address "R. T.," office of *The Iron Age*, 220 So. Fourth St., Philadelphia.

SITUATION as Blast Furnace Founder; 35 years' experience; can furnish best of references. Address ROB'T POLLOCK, Elmira, N. Y.

POSITION AS CHEMIST in either Iron or Steel Plant, Blast Furnace or Ore mines; am thoroughly competent and can furnish excellent references. Address "CHEMIST," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh.

A YOUNG MAN, 16 years' experience in General and Builders' Hardware, good Salesman, best of references as to business ability and moral character, would make connection with a good house in a live growing city, where a small amount of capital will obtain an interest in the business. Address "PROMOTION," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MARRIED MAN, 30 years old, would like position as Buyer or Sales Manager in wholesale Hardware house; 10 years' experience as a Traveling Salesman and 3 years in leading positions in the house where he now is; thoroughly familiar with all the details of a systematic business; excellent references. Address "SYSTEMATIC," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION by a Machinery Pattern Maker of long experience; have a good situation now in that capacity in Pennsylvania, but on account of my family preferring to live East, I wish to move there; can furnish first-class references; wages reasonable. Address "PATTERN MAKER," Box 200, office of *The Iron Age*, 66 and 68 Duane St., New york.

ENGINEERING KNOWLEDGE, ABILITY, broad experience in the foundry and machine business, and in manufacturing and construction, draughting, estimating costs and prices, correspondence, and a reliable, energetic nature, are the qualifications possessed by a thoroughly competent Mechanical Engineer, with experience and capacity to fill a responsible position. Address "EXECUTIVE QUALITIES," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

YOUNG MAN thoroughly posted in General and Builders' Hardware; has had 7 years' experience in retail hardware business and 3 years as traveling salesman for a large wholesale house, is now open for a position as a traveling salesman, either with wholesale hardware or manufacturing establishment; unquestionable references furnished. Address "THOROUGH," office of *The Iron Age* 66 and 68 Duane St., N. Y.

A GENTLEMAN, aged 43, possessing business abilities of a high order and a complete knowledge of the wholesale hardware business, will be open to an engagement January 1st. Higest references given. Address "B. B.," office of *The Iron Age*, 66 & 68 Duane St., New York.

A THOROUGH, practical and scientific man desires to take charge of blast furnace, steel works, in any way concerning the mining and manufacture of iron; also in addition can sell 20,000 tons of iron a year. Address "ONWARD," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MAN of 30 years' experience in the steel trade, a position to take charge of rolls as foreman in a mill or hammer shop, or will undertake the entire control of a crucible steel plant. Address "FOREMAN," 73 Green St., Cumberland, Md.

A GENTLEMAN of character and ability, with nine years' experience in the Iron, Steel and Hardware business, would like to correspond with some good manufacturer in the Iron and Steel or Hardware line, desirous of establishing a branch office or agency at Cleveland, O. Address "J. F. C.," office of *The Iron Age*, 219 Superior St., Cleveland, O.

POSITION WANTED by practical Foundryman familiar with all details in the production of soft, light and medium weight gray iron castings; can use molding machines to an advantage; 25 years' experience in the management of foundries employing from 10 to 100 men; American, middle age, strictly temperate; unquestionable references furnished. Address "CASTINGS," Lock Box 433, East Brookfield, Worcester Co., Mass.

MECHANICAL ENGINEER and Draftsman, experienced in the designing of machine tools, special machinery, traveling cranes, hoisting machinery, hydraulic machinery, transmission of power, steam engines, single and compound, rolling mill work, etc., desires engagement. Address "CONSOLIDATION," office of *The Iron Age*, 66 and 68 Duane st., N. Y.

RESPONSIBLE situation as head draftsman, superintendent or assistant. First class service for first-class pay. Address "W. T.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A WELL-KNOWN Hardware Salesman would like to make arrangements with some good manufacturer, to represent his line in the West and Northwest, where he has traveled for the last 15 years; would like a line of chisels and drawing knives, wrenches, or three or four small lines. Address "S. S. S.," office of *The Iron Age*, 66 and 68 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

NEW TECHNICAL BOOKS.

Elliptic Functions. An Elementary Text Book for Students of Mathematics. By PROF. ARTHUR L. BAKER. 8vo, cloth.....$1.50

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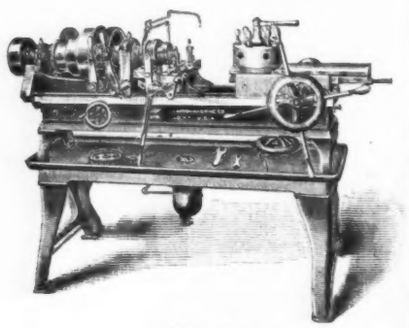
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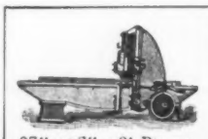
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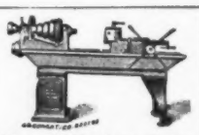
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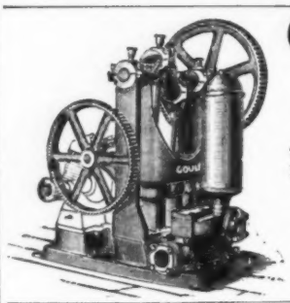


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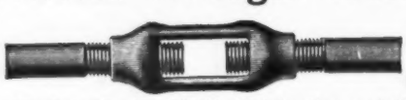
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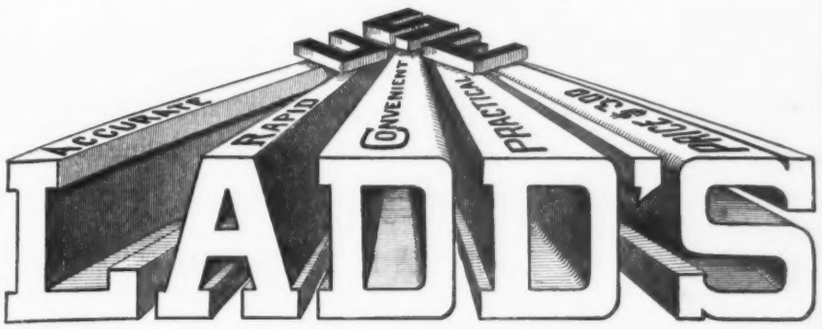
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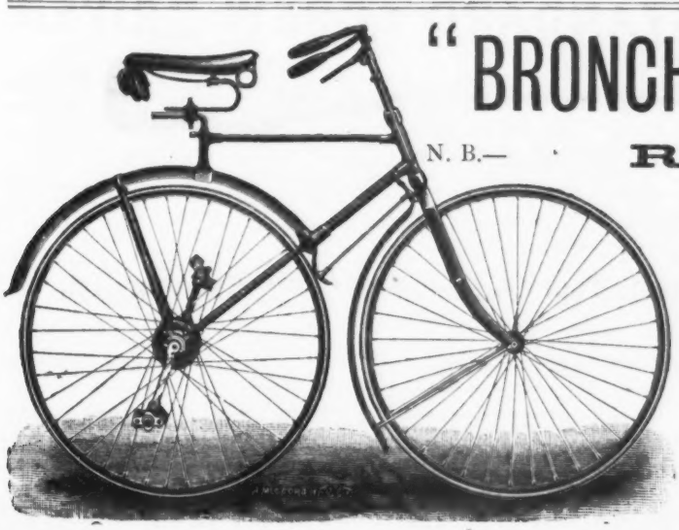
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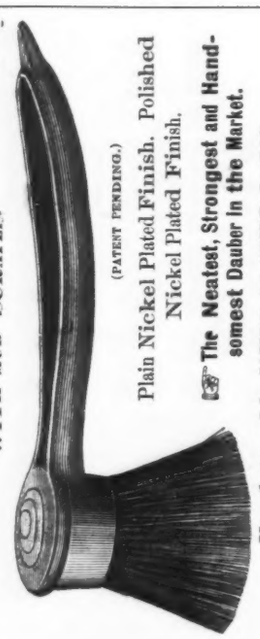
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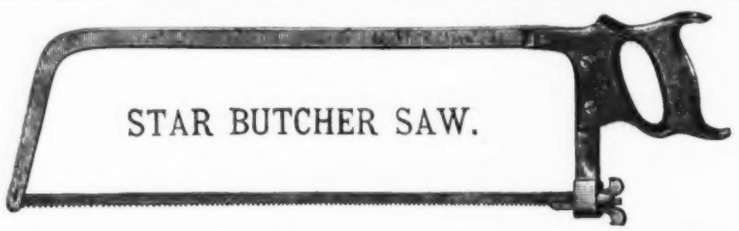
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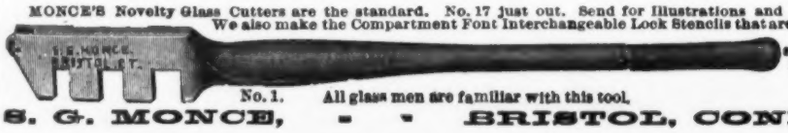
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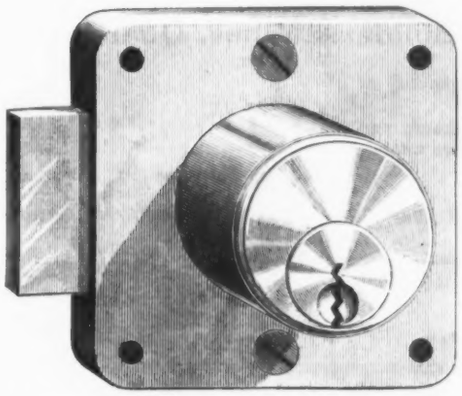
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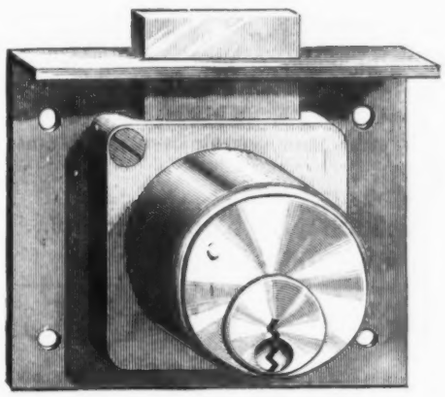
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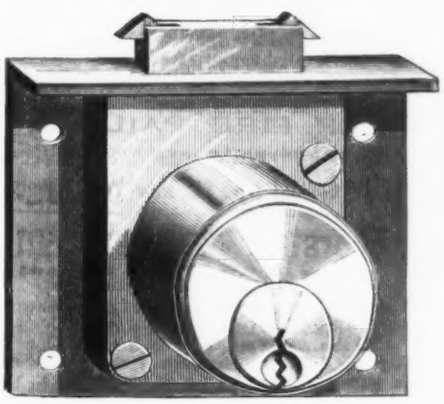
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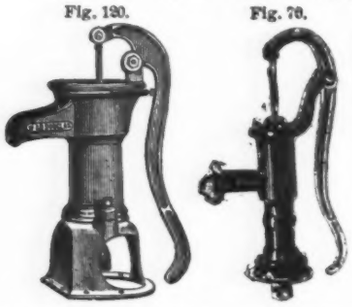
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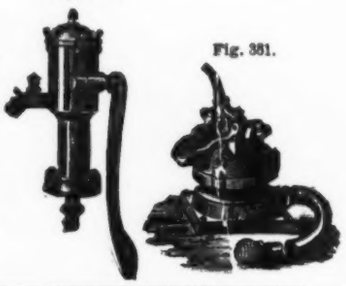
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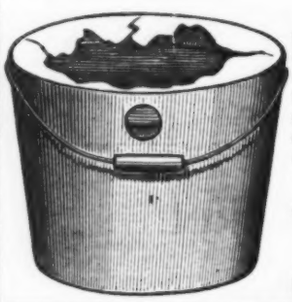
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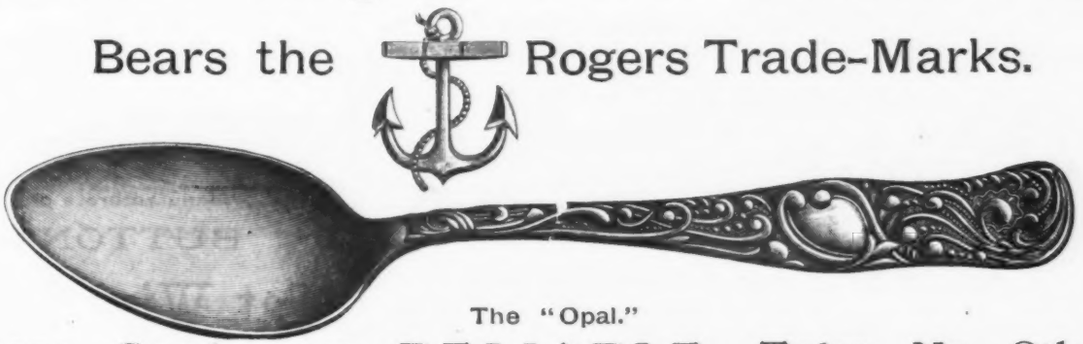
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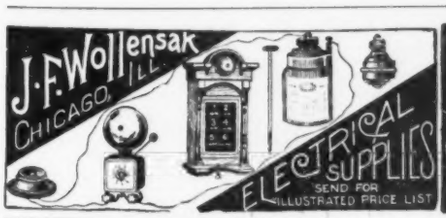
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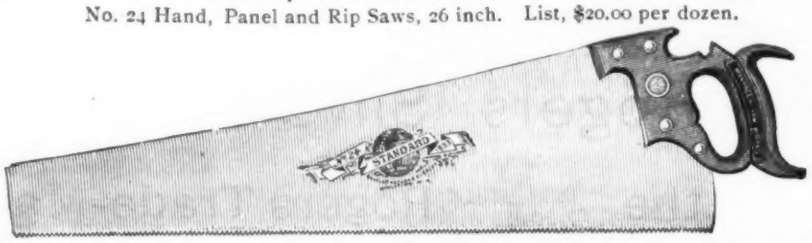
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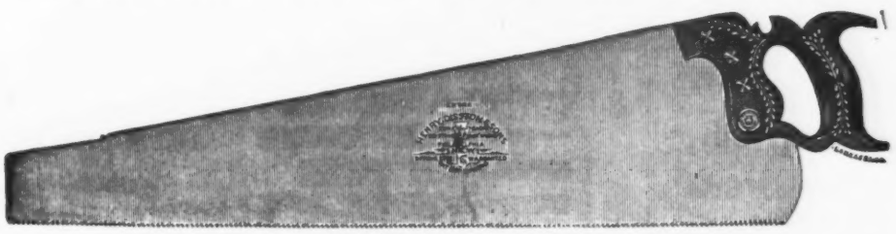
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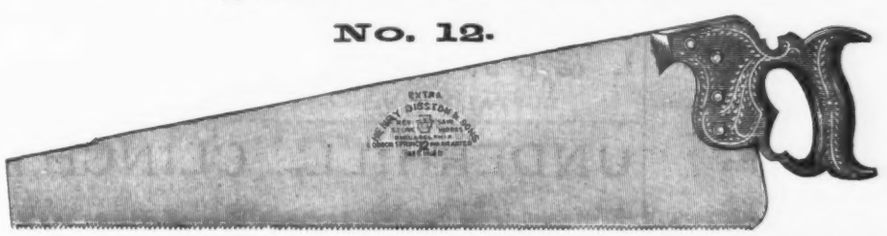
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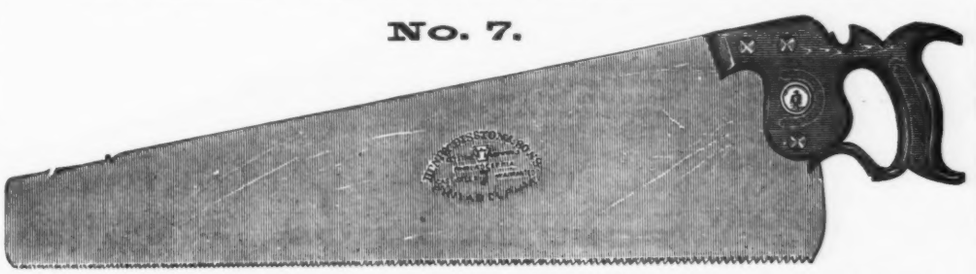
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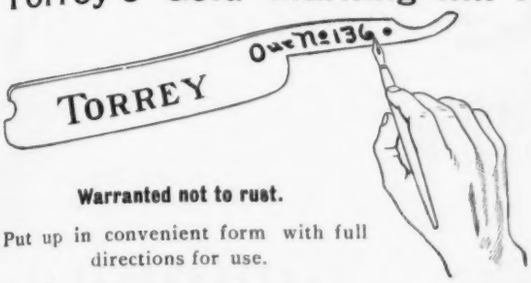
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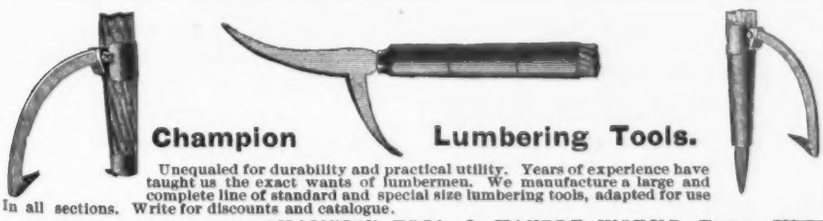
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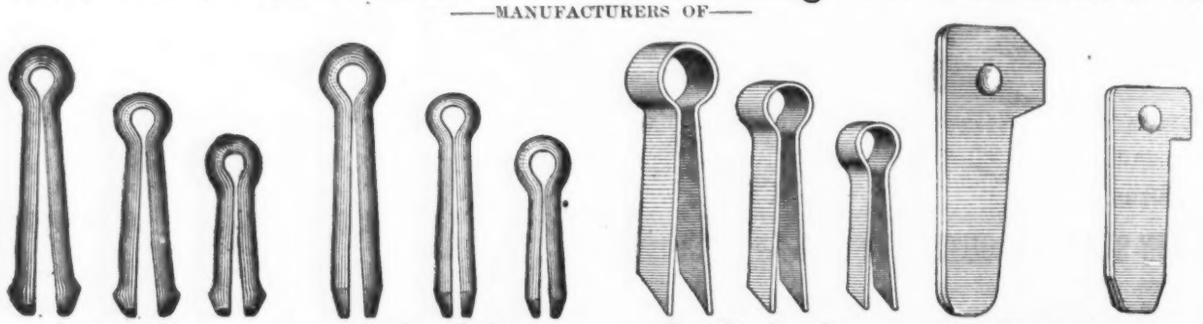
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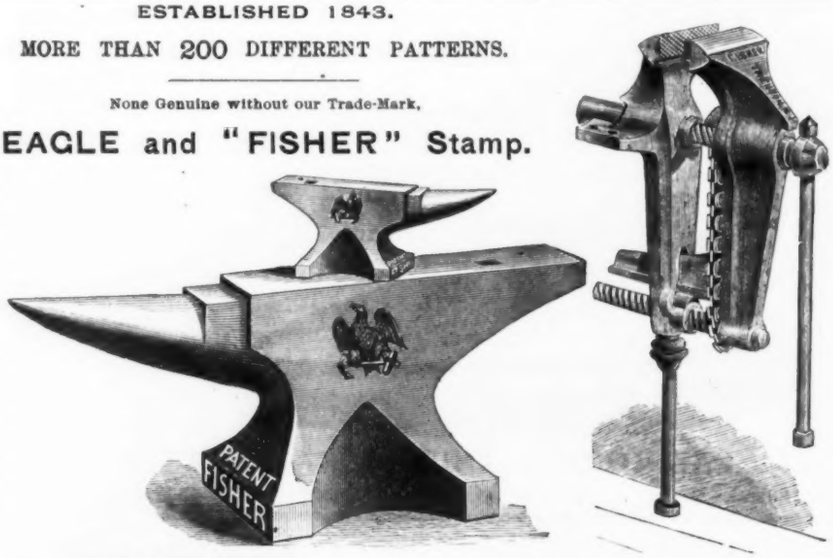
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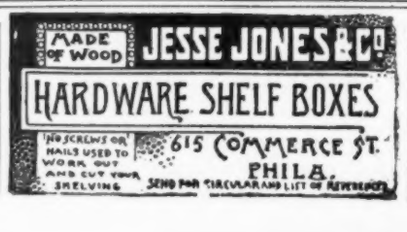
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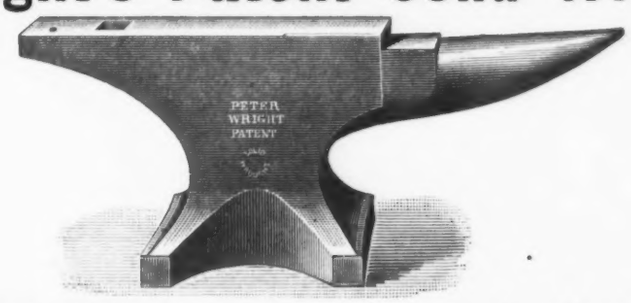


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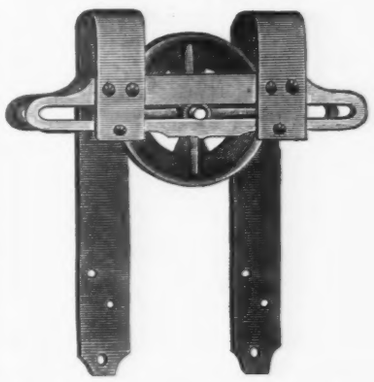
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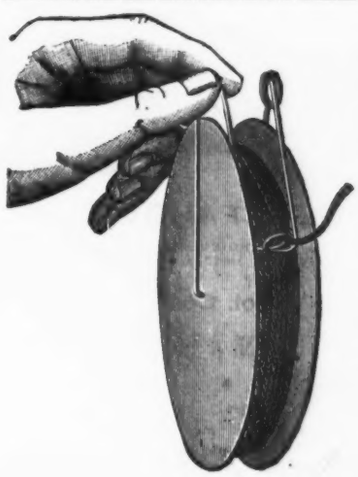


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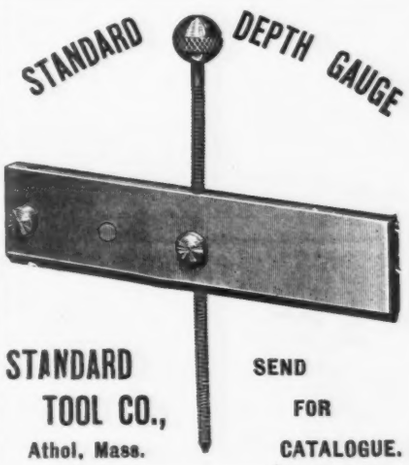
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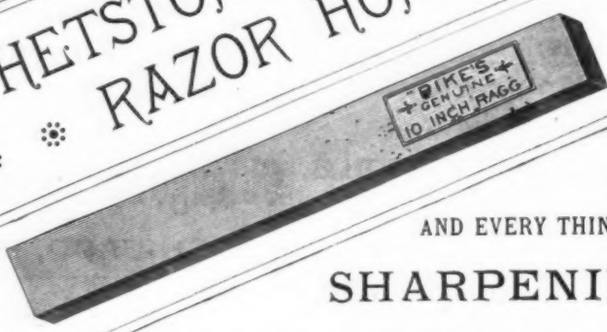
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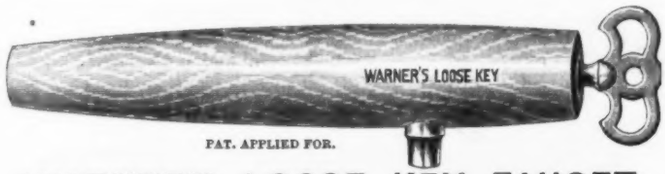
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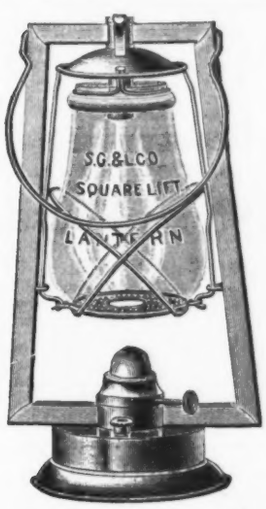
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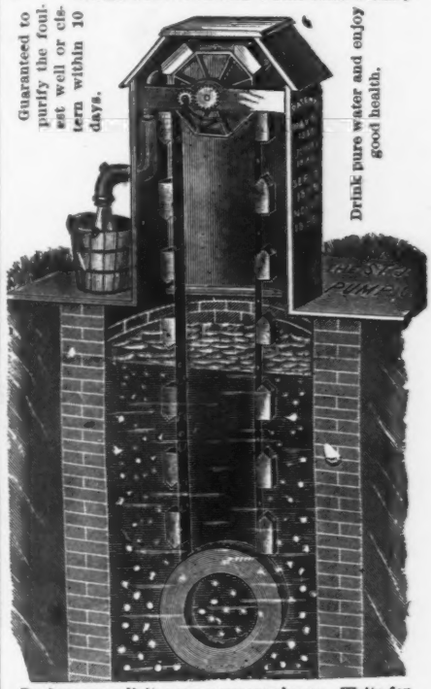
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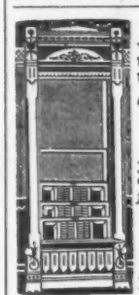
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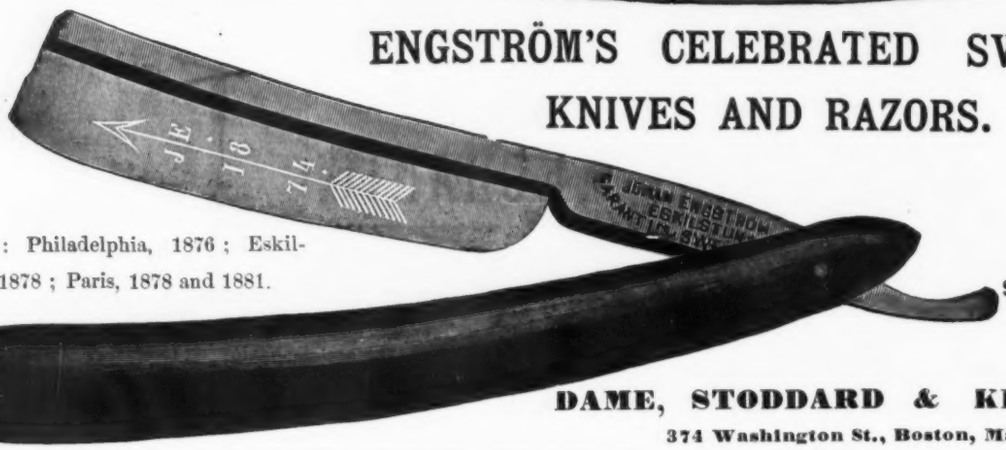
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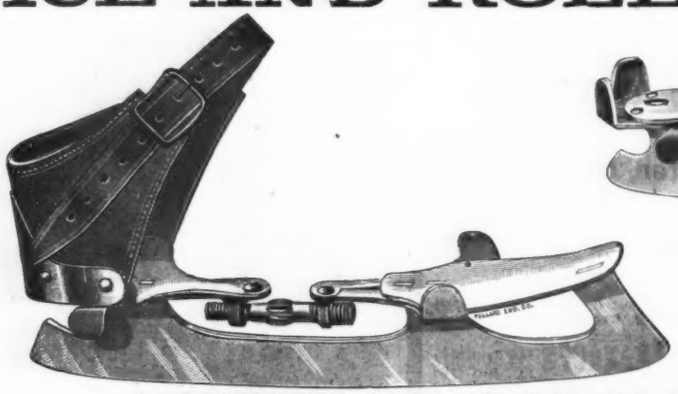
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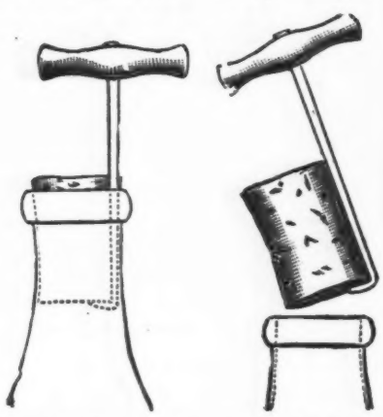


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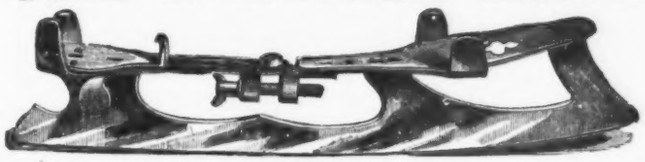
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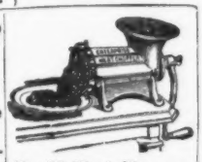
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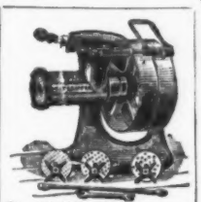

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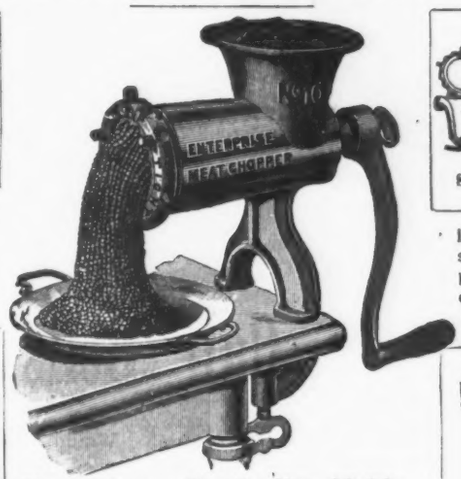
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Do Not Discolor the Meat.
Are Almost Noiseless.
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THEY SAVE POWER.
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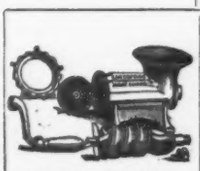

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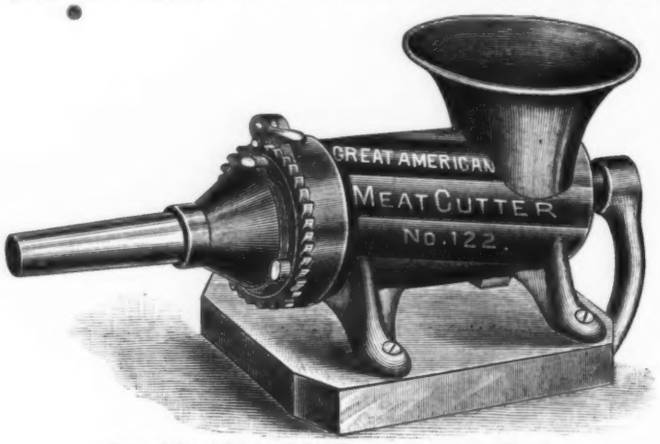
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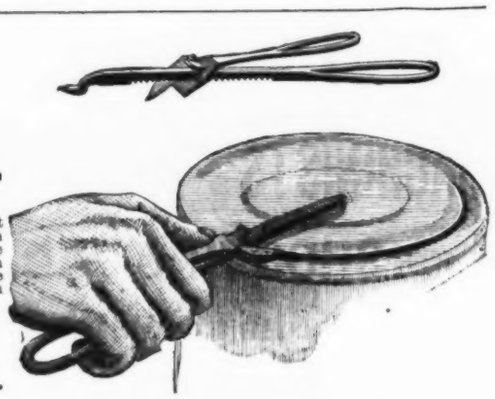
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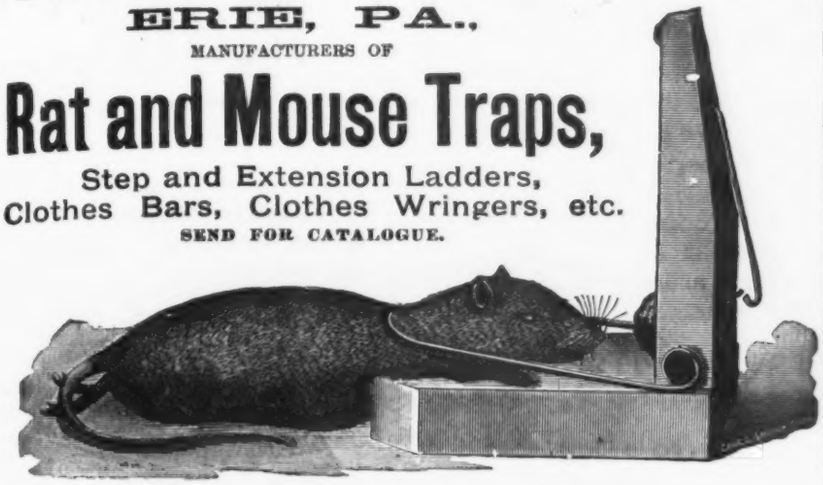
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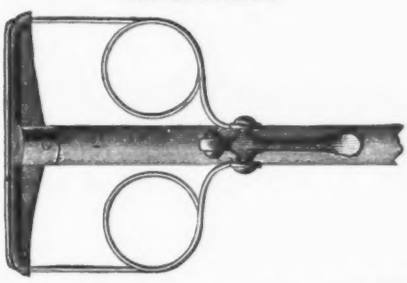


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They are well recommended by those who have them in use. It is the only can opener that will cut off the top of paint pails. There are hundreds in use for this purpose.
It cuts stove pipe, tin pipe, &c., to perfection. The blade is made of the best cutlery steel, and the spring is of the most reliable make. For sale by all wholesale hardware dealers. Samples will be forwarded to any address on receipt of 50c. Address **Wheeler Patent Can Opener Co.**, 102 South Main St., St. Louis, Mo.

The TROJAN MOP STICK.

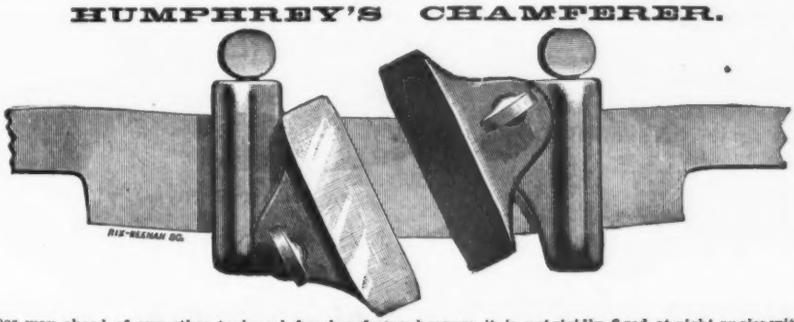
PATENT PENDING.



We call special attention to our method of lapping the ends of the wire around the arms of the lever. It is there to stay. If as good a Mop Stick is on the market we have never seen or heard of it. Send for Prices.

PEABODY & PARKS, Troy, N. Y.

HUMPHREY'S CHAMFERER.



Goes way ahead of any other tool used for chamfering because *it is not* rigidly fixed at *right angles* with the blade as others are, but can be *set at any angle* which the nature of the work requires. This feature is invaluable when hard or cross-grained wood is to be worked. Send for lists and prices. Several new tools this season.

HUMPHREY TOOL CO., Warren, Mass.

COMMON MOUSE TRAPS
BEST FOR USE!

Ripley Mfg. Co., Unionville, Conn



Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks. Magnetic Tack Hammers, Mallets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side Up. Lap Board.

EDWARD S. HOTCHKISS.

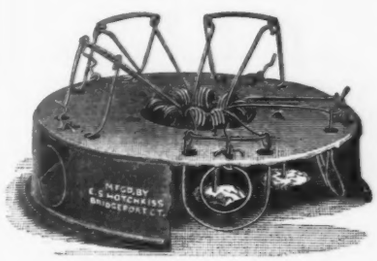
BRIDGEPORT, CONN.

Manufacturer of

HARDWARE.

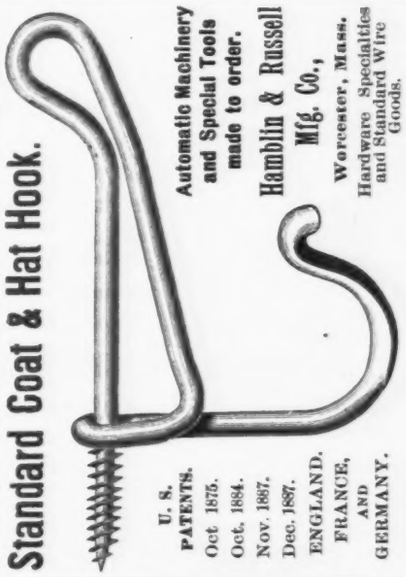
Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches,
Horse and Toilet Clippers,
Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016

Standard Coat & Hat Hook.



Automatic Machinery and Special Tools made to order.

Hamblin & Russell Mfg. Co.,
Worcester, Mass.
Hardware Specialties and Standard Wire Goods.

U. S. PATENTS. Oct 1875. Oct. 1884. Nov. 1887. Dec. 1887. ENGLAND, FRANCE, AND GERMANY.

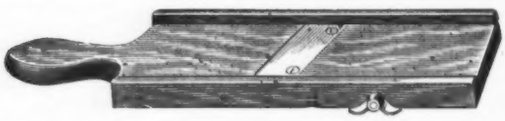
Closes doors without slamming or breaking of Glass.



FOR SALE BY
NORTON DOOR CHECK AND SPRING CO.,
Sears Building, Boston, Mass.
AGENTS WANTED.

THE QUEEN ANNE SCREEN CO.,
of Burlington, Vt.
MANUFACTURERS OF
Improved Adjustable Window Screens.

THE QUEEN ANNE. With box panels; the only screen made and finished alike on both sides.
THE EUREKA. The best cheap extension screen on the market.
SCREEN DOORS. Finished all ready to hang. Sticks Corners, Improved Frames, &c.
Send for Circular and Price List.



MONEY! MONEY!

So hard to obtain yet so easy to lose. You can never lose the proceeds of cash sales made during the day in your store if as received they are deposited in one of "Tucker's Alarm Tills." Why not? Because any attempt of the "Till Tapper" is at once announced by the alarm attached to the drawer.

Did you notice the little cut up in the corner? It illustrates our "Vegetable Cutter," one of the handiest articles that we make. All our goods are, however, very useful articles in any household, therefore are good things for the dealer to sell. Write



Tucker & Dorsey Mfg. Co.,

MAKERS OF

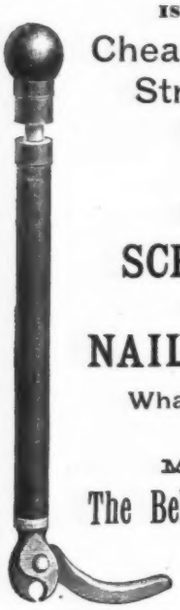
Store, Stove and Barrel Trucks, Towel Rollers, Hat and Coat Racks, Lemon Squeezers, Slaw and Kraut Kutters, Knife Trays, Potato Mashers, Saw Bucks, &c., at

Indianapolis, Ind.

Can't Hurt the Hand

IS THE

Cheapest,
Strongest,
Quickest,
Best.



WHAT?

SCRANTON'S

IMPROVED

NAIL PULLER.

What more do you want?

MADE BY

The Belden Machine Co.,

New Haven, Ct.

S. A. HAINES CO., - Selling Agents,

90 Chambers St., New York.

Builders' Hardware. A manual for Architects, Builders and Housefurnishers. By CLARENCE H. BLACKWELL. Illustrated. Cloth.....$6.00

For Sale by DAVID WILLIAMS, 66 and 68 Duane St., N. Y

Wrought Steel Hollow Ware.



"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a **guarantee** that they cannot **break, bend or warp.** An important feature also is that they are made **without rivets,** and **cannot leak** or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.



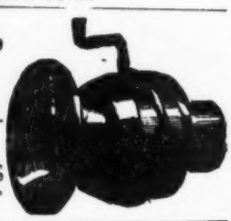
W. R. OSTRANDER & CO.,

195 and 197 FULTON ST., NEW YORK,

Manufacturers of

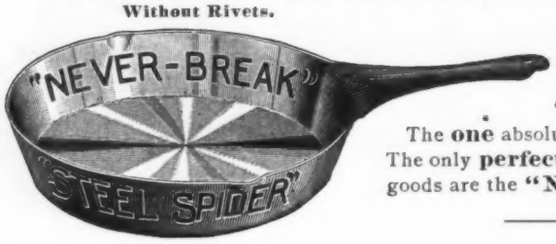
SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



"NEVER-BREAK" COLD HANDLE STEEL SPIDERS "NEVER-BREAK"

Without Rivets.



All One Piece.

The only **One Piece** spider with cold handle is the **"Never-Break."**

The **one** absolutely **clean** handle.

The only **perfectly** polished **steel** goods are the **"Never-Break."**

Riveted Handle.



Only Two Pieces.

Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

A FULL ASSORTMENT OF WROUGHT STEEL HOLLOW WARE.

Manufactured only by **THE BRONSON SUPPLY CO., Cleveland, Ohio.** N. Y. Office, 51 Cliff St.



THE SWIFT MILL.

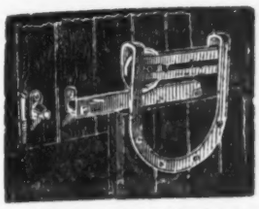
ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.



Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.



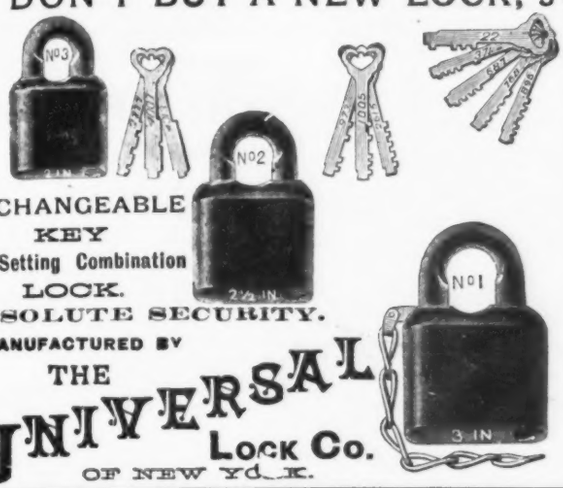
The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by LANE BROS., Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street NEW YORK.

DON'T BUY A NEW LOCK, JUST BUY A DIFFERENT KEY.



A CHANGEABLE KEY
Self-Setting Combination LOCK.
ABSOLUTE SECURITY.
MANUFACTURED BY
THE UNIVERSAL Lock Co.
OF NEW YORK.

This lock differs from all others in the fact that it will set itself to any one of 4013 different keys with which the user may choose to lock it. Only the key used in locking will unlock it.

The advantage will naturally become apparent when for any reason whatever the user wishes to change the means of securing his premises, he need only buy a new key. Obviously as many different locks for securing the premises will be available as there are keys in the possession of the holder.

PRICE LIST.

No. 1 (with Chain)	per dozen,	$24.00
" 1	"	21.00
" 2	"	18.00
" 3	"	15.00

Extra Keys, 10 cents each.

NOTE.—Keys numbered from 1 to 4013 inclusively.

—SALES DEPOTS:—

John H. Graham & Co., - 113 Chambers St., New York.
C. H. Gurney Company, - 247-249 Lake St., Chicago, Ill.

ATTENTION.

CUSTOM HOUSE, PORTLAND, MAINE, July 13, 1890.

AMES SWORD CO., Chicopee, Mass.

GENTLEMEN: I am glad to learn that your locks are to be adopted by the Treasury Department for the bonded warehouses. The samples from your works sent here last fall were thoroughly tested during the winter and proved satisfactory.

Your obedient servant,

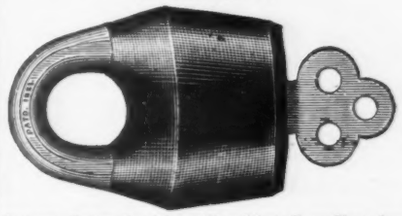
(Signed) CHAS. W. ROBERTS, Supt. of Warehouses.

PATENT PERFECTION PADLOCK,
MANUFACTURED BY
AMES SWORD CO., - Chicopee, Mass., U. S. A.

KEYSTONE LOCK WORKS,

E. T. FRAIM, Lancaster, Pa., U. S. A.

MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS.** 44 different grades and sizes.

Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

SURPLESS, DUNN & ALDER,

General Agents, 97 Chambers St., New York.

Self-Locking Scandinavian Padlocks.

NEW LINE. SECURE. CONVENIENT. DURABLE

In compliance with popular demands for a lower priced line of padlocks to work on our self-locking principle, we are now making a

Special, Cheap, New Line.

Self-Locking, with Maroon Finish and Polished Shackles



Each lock has two handsome **Cast Steel Keys** of unique design and light in weight, as shown on accompanying cut. This line is made especially for export and cheap trade.

Brass, Bronze Mal. Iron and Nickel Plated Self-Locking Scandinavian Padlocks.

W. DODMAN, Gen'l Agent,
103 Chambers Street, New York, N. Y.

Slaymaker, Barry & Co.
Manufacturers,
Lancaster, Pa., U. S. A.

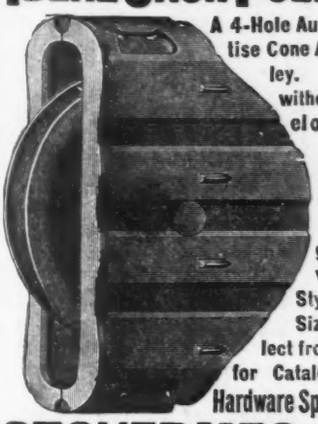


TRIUMPH CHAINS.

"TRIUMPH" WIRE CHAINS, Halter Chains, Dog Chains, Kennel Chains, Coil Chains, &c.; the most perfect Chains made for their various purposes; made of **Steel Wire** and possess great strength; much lighter than sheet metal or welded chains; no sharp edges; do not kink; no bad welds; in fact the most saleable and serviceable chains the trade can handle. Also "Monarch" Sash Chain, Plumbers' Safety Chains, &c. Send for catalogue.

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn.

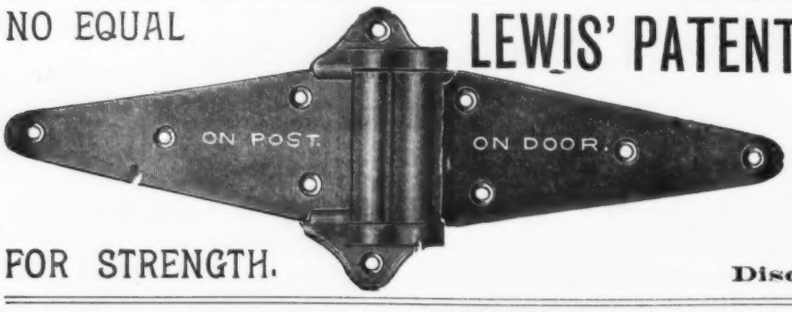
IDEAL SASH PULLEY.



A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

STOVER MFG. CO.
145 River St., Freeport, Ill.

NO EQUAL



FOR STRENGTH.

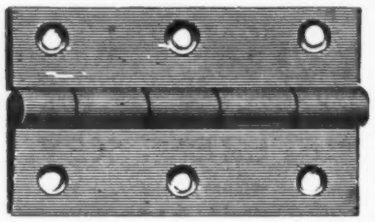
LEWIS' PATENT STRAP AND T HINGES

—MANUFACTURED BY—

E. B. LANMAN,

Columbus, Ohio.

Discounts mailed on application.



Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

Nos. 16 & 18 Chambers Street, New York.

MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY HARDWARE.

HARDWARE DEALERS

CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

MANUFACTURED ONLY BY

"THOMAS MORTON,"

65 Elizabeth Street,

Write for Prices. **NEW YORK.**

Palmer's Common Sense Frame Pulley.



MANUFACTURED BY

PALMER HARDWARE MFG. CO., Troy, N. Y.

Sole Eastern Agts., Peabody & Parks, Troy N. Y.

SASH WEIGHTS

E. E. BROWN & CO.,

McKean and Meadow Sts.,

PHILADELPHIA PA.



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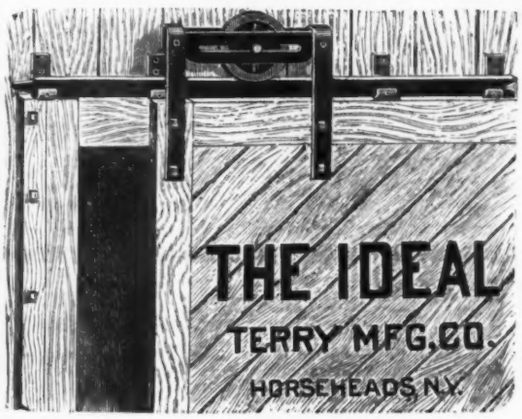
STEEL HANGER AND RAIL.

Derailment Impossible. Occupies least possible space.

VICTOR MFG. CO.,

NEWBURYPORT, MASS.

Sales Agents: Cutter, Woodrough & Co., Chicago, Ill., Hoen & Von Kappf, Baltimore, Md.



THE IDEAL STEEL Anti-Friction Hanger.

Sure to Please the Trade.

Works VERY EASY, is STRONG and combines ALL the BEST Features of an Anti-Friction Hanger.

4-in. Wheel, 6-ft. Run, $15 per doz. pairs.
5-in. " 10-ft. " 18 " " "

Would be glad to quote you Prices.

TERRY MFG. CO., Horseheads, Chemung Co., N. Y.



The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

CALDWELL MFG. CO., Rochester, N. Y.

READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

"NEVER-BREAK" WROUGHT STEEL Cooking Utensils

ARE THE BEST.



They are always clean, sweet and wholesome. They "Never-Break," crack or warp. That is why this Medal of Superiority was Awarded by The American Institute to

The BRONSON SUPPLY CO., Cleveland, Ohio.

NEW YORK OFFICE, 51 CLIFF STREET.

Double Acting Spring **BUTTS**

SABIN'S LEVER DOOR SPRINGS

Coil, and Sabin's Volute Springs

For various purposes made to order.

SABIN MACHINE CO. Montpelier, Vt.

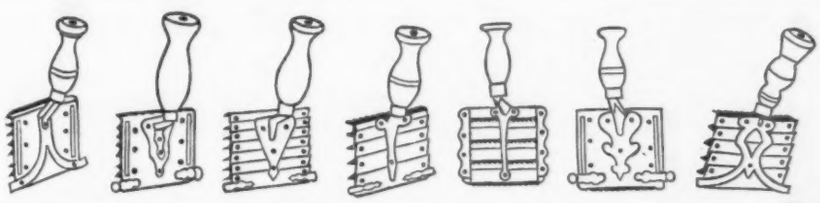
J. F. WOLLENSAK'S PAT. TRANSOM LIFTERS

Old Reliable. CLASS 2. CLASS 3. CLASS 4. | **New Goods.** EAGLE. CROWN. SHIELD.



FOR PRICES, &c., APPLY TO

J. F. WOLLENSAK, Patentee and Maker, CHICAGO, ILL.



OUR CURRY COMBS ARE THE SELLERS.

SEE OUR CATALOGUE.

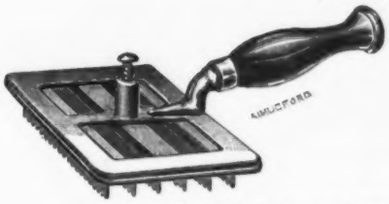
Southington Cutlery Co.,

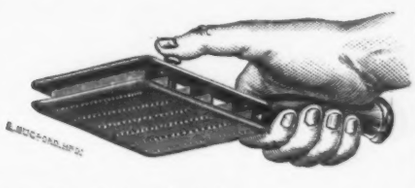
SOUTHINGTON, CONN

The "MAUD S" CURRY COMB.

With Striper and Round Pointed Teeth is the BEST IN THE WORLD.

(Patented Nov. 4, 1884.)



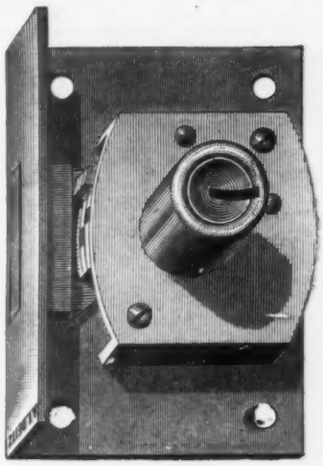


For sale by dealers everywhere. Manufactured only by

B. B. NOYES & CO., Greenfield, Mass., U. S. A.

Send for Circular and Prices. Mention THE IRON AGE.

A. E. DEITZ.



No. 51 LOCK.

J C. McCARTY & CO., Agents,

97 Chambers & 81 Reade Sts., New York.

Factory, BROOKLYN, E. D., N. Y.

IVES' PATENT

SASH LOCKS



Offers greater security and durability combined, and has a larger sale than any other Sash Lock or Sash Fastener on the market.

Important features are in securely locking when open or closed, and simultaneously carrying the MEETING RAILS in position, and drawing them closely together.

The Ives Patent Sash Locks are manufactured under nine patents in all styles of finish.

Address us for price-list, mailed free, showing fifty styles Sash Locks and Door Bolts.

MANUFACTURED ONLY BY

HOBART B. IVES & CO.,

NEW HAVEN, CONN.



PAT. NOV. 15, '87.

The Champion Window Sash Lock

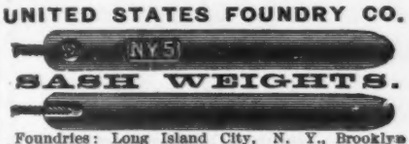
IS KING OF THEM ALL!

It combines *all* the qualities desirable in a sash lock, having the merit of extreme *simplicity* and *remarkable strength*, combined with the *greatest efficiency* of any lock now known. Architects, Builders and Hardware Dealers are receiving them with universal and enthusiastic approval.

The Champion Safety Lock Co.,

99 and 101 Water St., - Cleveland, Ohio.

UNITED STATES FOUNDRY CO.



SASH WEIGHTS.

Foundries: Long Island City, N. Y., Brooklyn (N. 11th St.), N. Y., Brooklyn (Leonard St.), N. Y. Baltimore, Md., Jersey City, N. J., Chelsea, Mass.

Office: 56 Pine Street, New York.

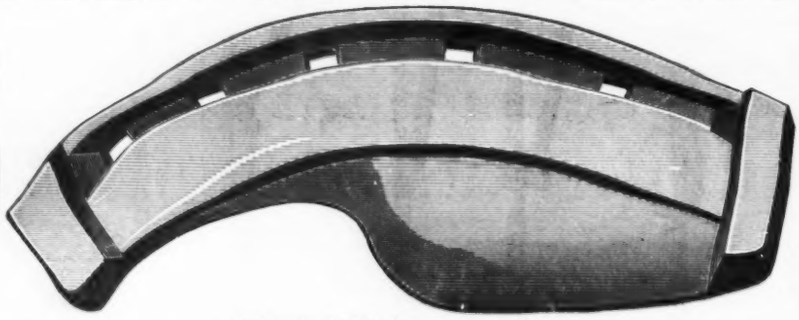
SCRANTON FORGING CO.,

CARRIAGE HARDWARE

AND

SPECIAL DROP FORGINGS.

FORGED OX SHOES.



Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

It is Just Right.

Made under Deeble's Patent, Aug. 9, 1887.



P. F. BURKE, Successor to C. F. DEWICK & CO.

Manufacturer of

PATENT STEEL (Blunt and Sharp)

TOE-CALKS.

—ALSO—

BURKE'S IMPROVED

HORSESHOERS' FOOT VICE.

Send for Circulars.

360 Dorchester Av. BOSTON, MASS.

Die for Welding Sharp Calks.

WE RECOMMEND

Our No. 6½ Concord Express Axle

FOR TRUCKS, EXPRESS AND DELIVERY WAGONS.

WAGON = **AXLES** = CARRIAGE

CLEVELAND AXLE MFG. CO.,

CLEVELAND, OHIO.

WILCOX & HOWE

MANUFACTURERS OF



Carriage Hardware,

BIRMINGHAM, CONN.

A full line of all Staple Goods Illustrated in our Catalogue of 192 pages.

CHAMPLAIN

Forged Horse Nails.

MANUFACTURED BY THE

NATIONAL HORSE NAIL CO.,

Vergennes, Vermont.

HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED.

WAREHOUSE

97 CHAMBERS AND 81 READE STREETS NEW YORK.

J. C. McCARTY & CO. Sole Agents.

CARRIAGE FORGINGS.

Largest line made by any house.

SEND FOR ILLUSTRATED CIRCULAR AND CATALOGUE.

THE E. D. CLAPP MFG. CO.,

AUBURN, N. Y.



FROST'S ANTI-RATTLER

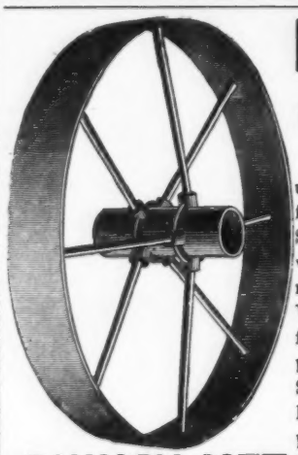
Pat. Jan. 20, 1880.

Cut One-half Size.

Sample pair sent to any hardware or saddlery firm by addressing

The Frost Thill Spring Co.,

Boston, Mass.



METAL WHEELS

FOR ALL PURPOSES.

Conceded the best, and used by the leading manufacturers in the United States. The only Wheel in which the spokes are connected to other parts of the Wheel with enlarged tenons, formed in place by heavy pressure and while cold. Send for descriptive catalogue, and mention this paper.



QUINCY METAL WHEEL CO., Quincy, Ill.

HURTHILL SPRING.

BEST and CHEAPEST.



WRITE FOR PRICE.

Pat'd Dec. 1, 1885.

BUTTS & ORDWAY,

498-504 Atlantic Ave., Boston, Mass., U. S. A.

H. D. SMITH & CO.,

Plantsville, Conn.,

MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE,

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

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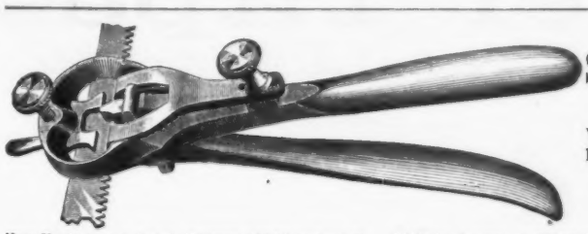


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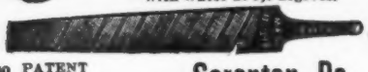
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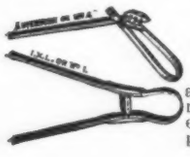


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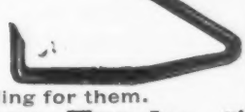
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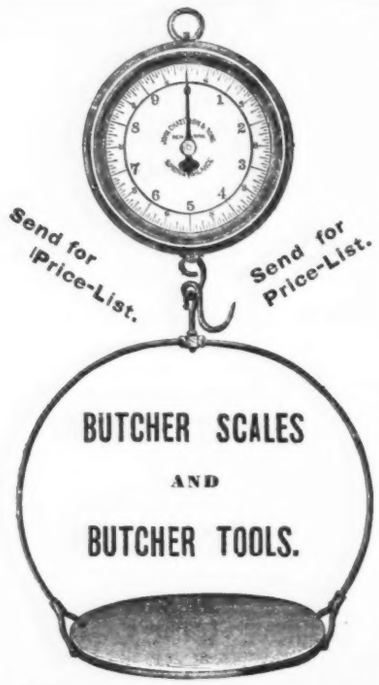






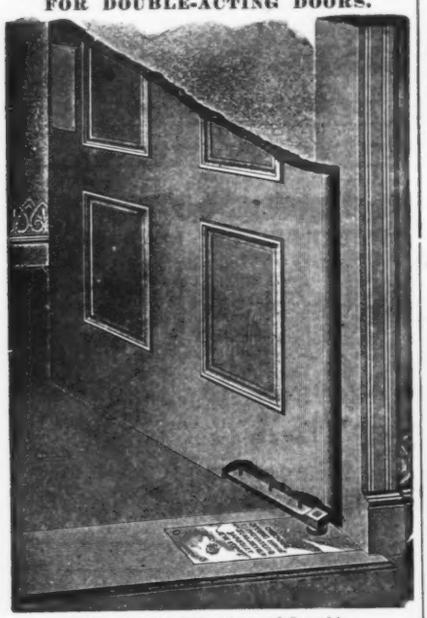
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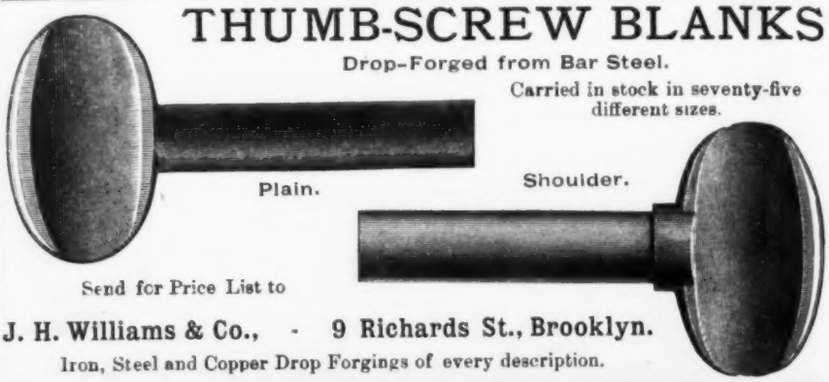
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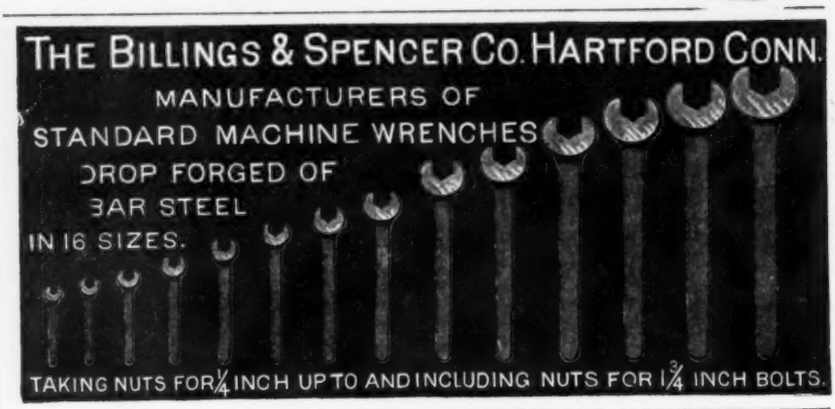
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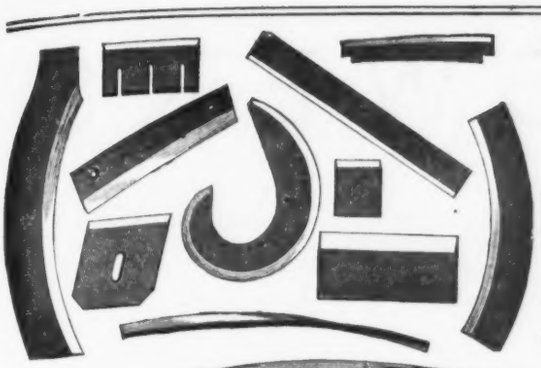
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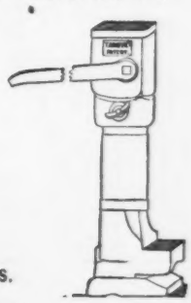
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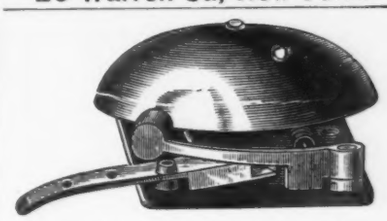


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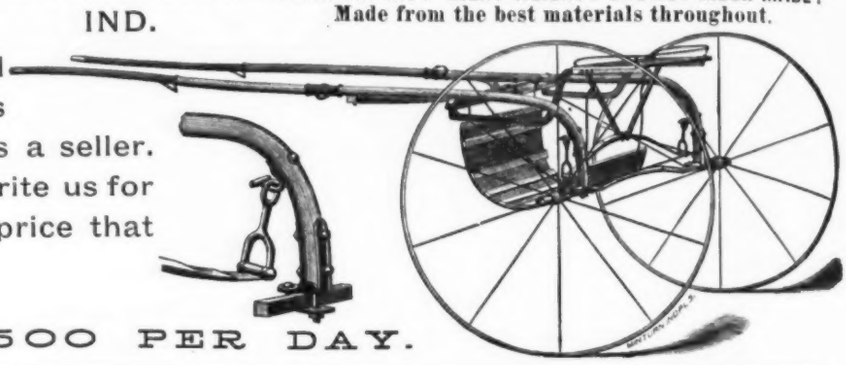
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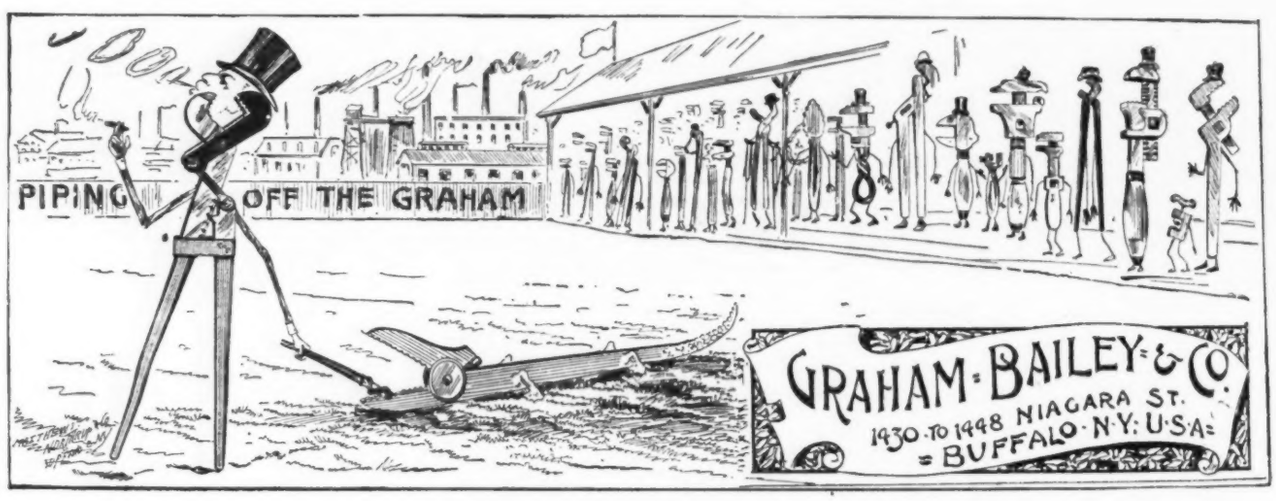
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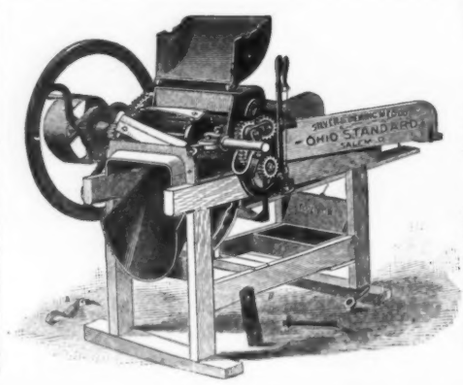
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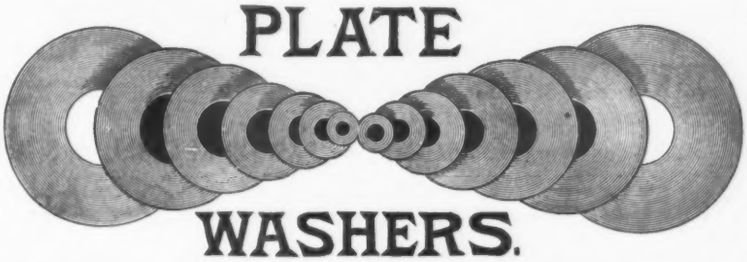
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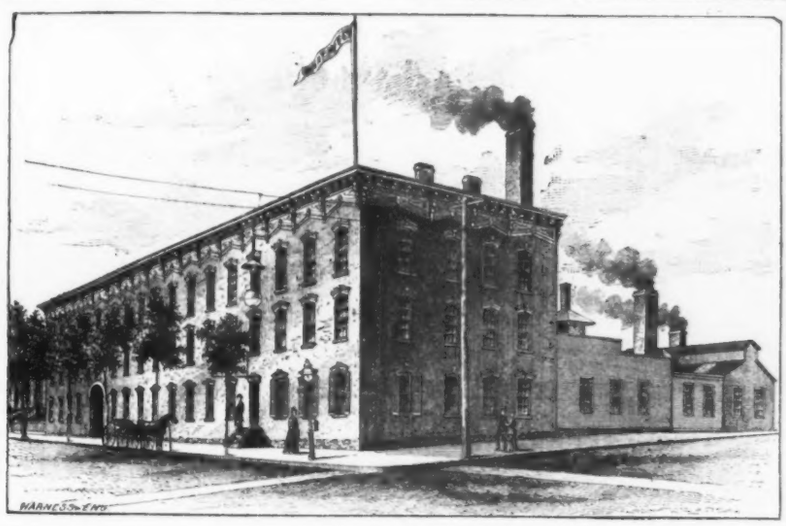
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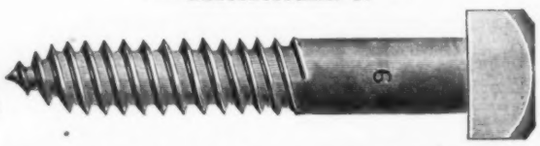
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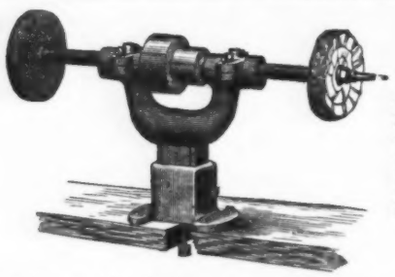
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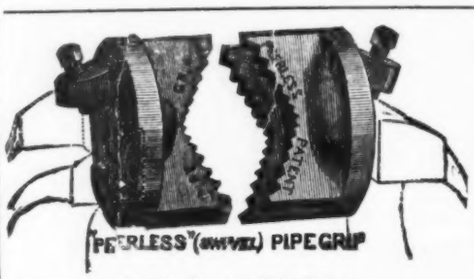
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(See Alphabetical Index, Page 94.)

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Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cuniffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore, E. M., Cincinnati, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L, Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Mop Sticks.
Peabody & Parks, Troy, N. Y.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mcl., Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Haik & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass "Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Coverings.
National Pulley Covering Co., Baltimore, Md.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.

(See Alphabetical Index, Page 94.)

Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y.

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Schwarzenberg Bros. & Co.,Cleveland,O
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sheeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hardware Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co,, N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Peck & Snyder, 124 Nassau, N. Y.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co,, Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syrscuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton. N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa.
Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England ,91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co!, Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Butts & Ordway, Boston, Mass.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Barlass Bros., Janesville, Wis.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.
Todd, H. B., Meriden, Conn.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.
Riehlé Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Mason Iron Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohia.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass

Wire. *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty, Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
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Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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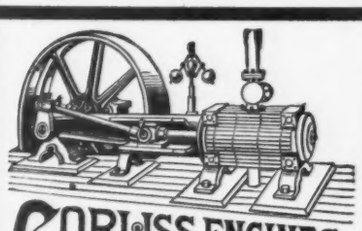
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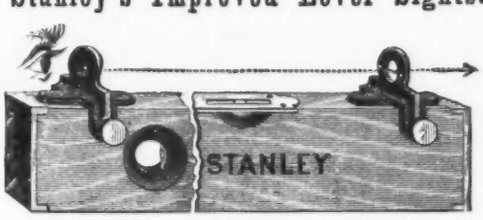
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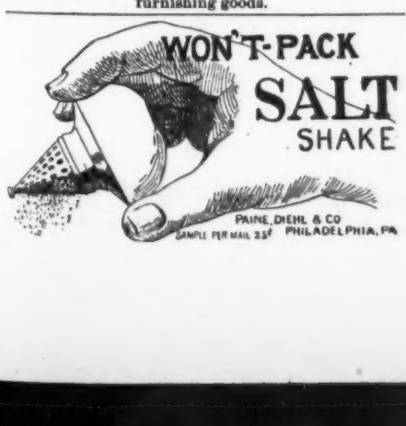
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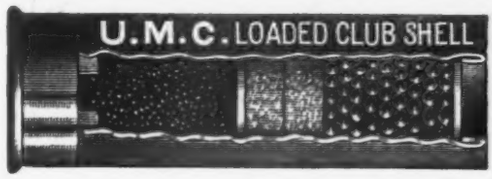
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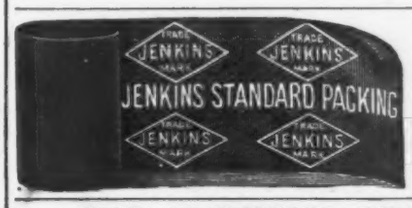
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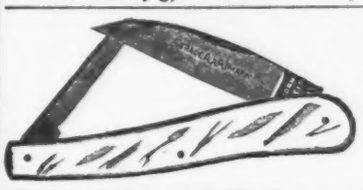
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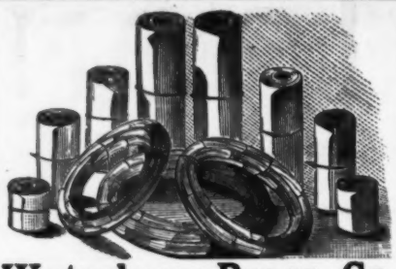
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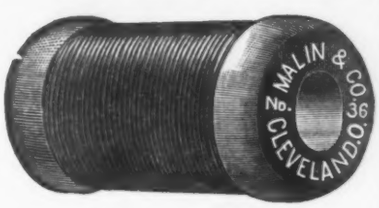
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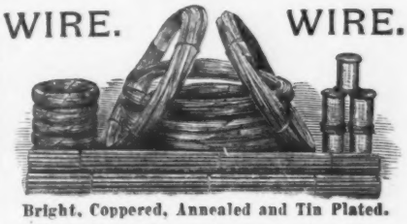
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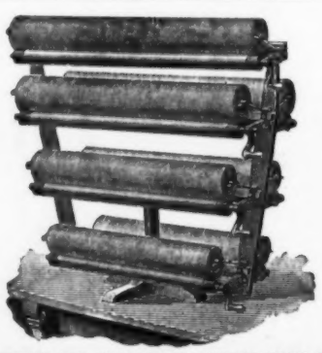
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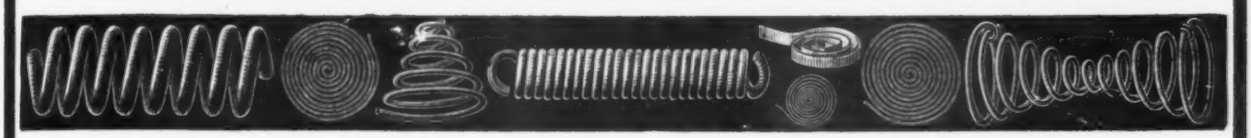
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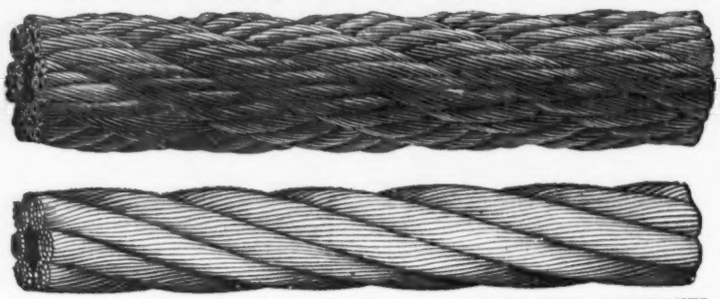
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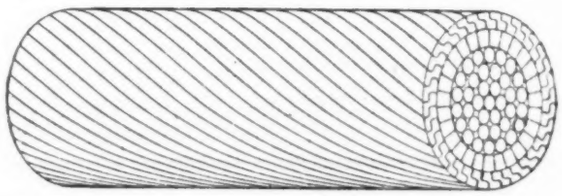
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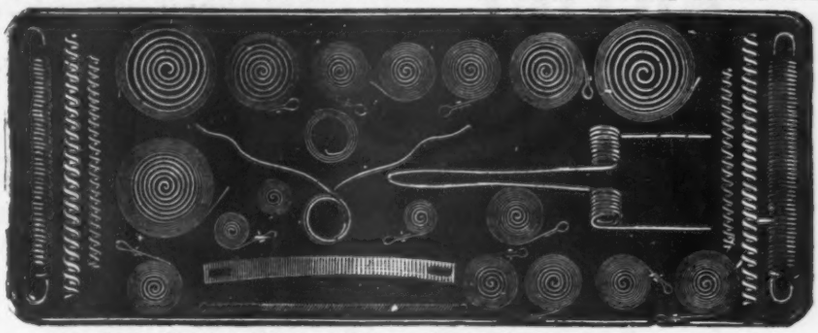
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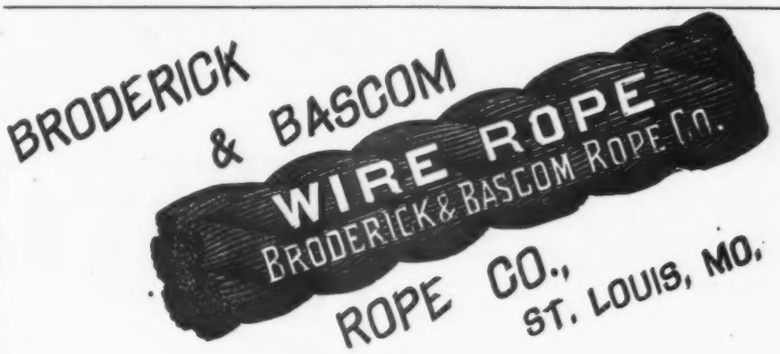
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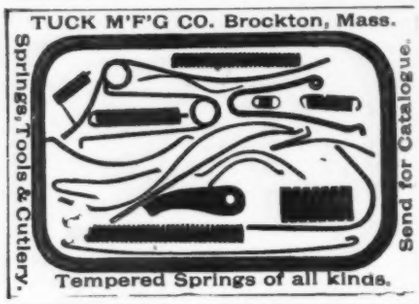


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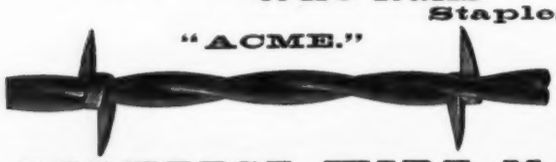
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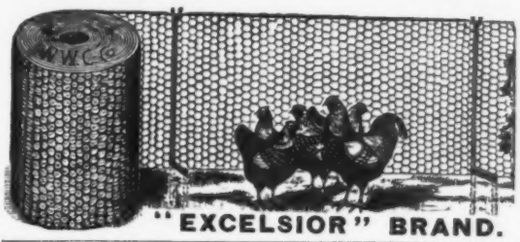
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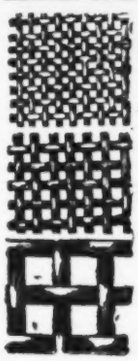
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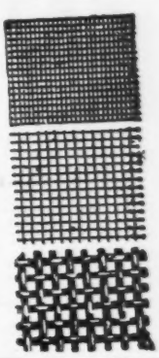
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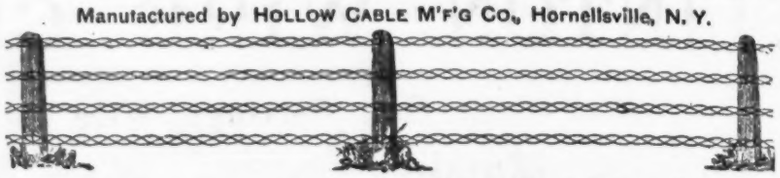
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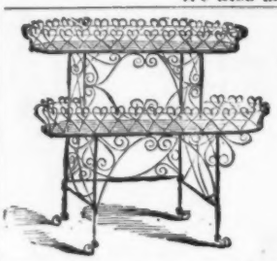


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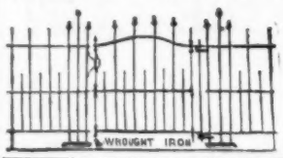
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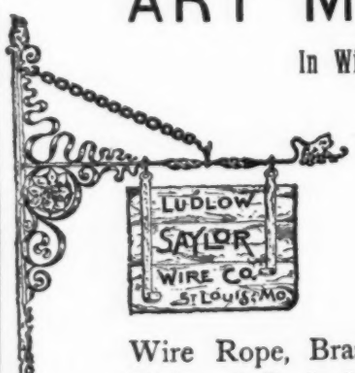


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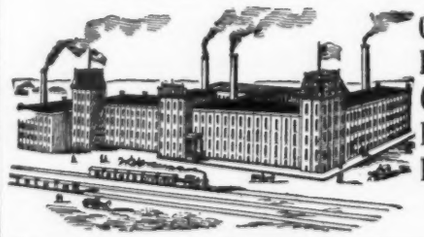
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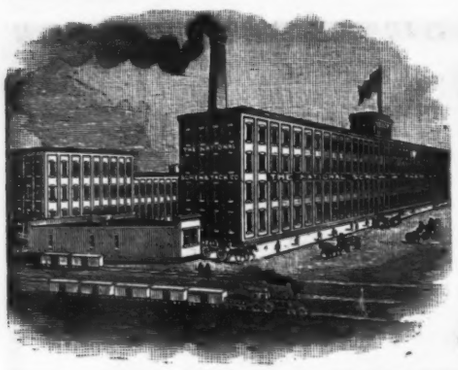
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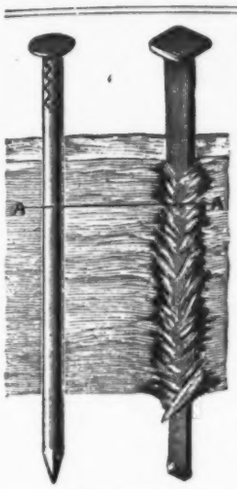
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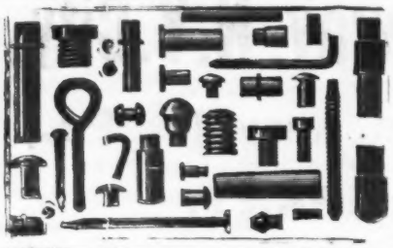
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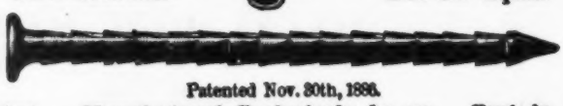
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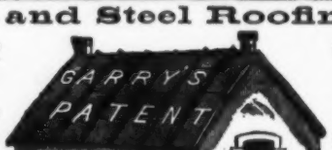
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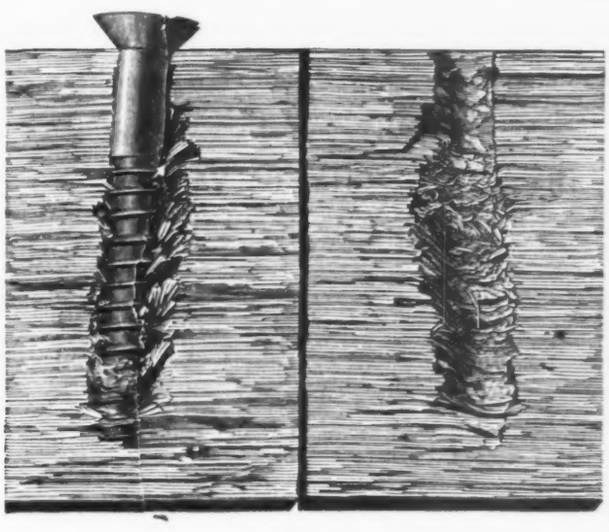
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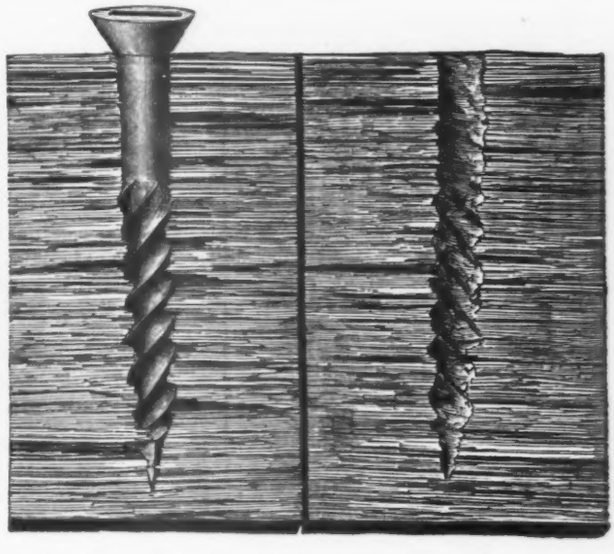
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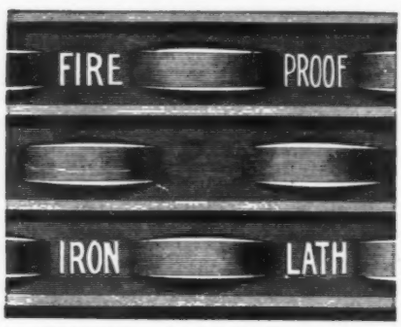
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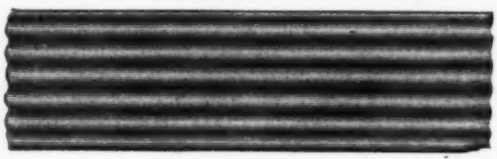
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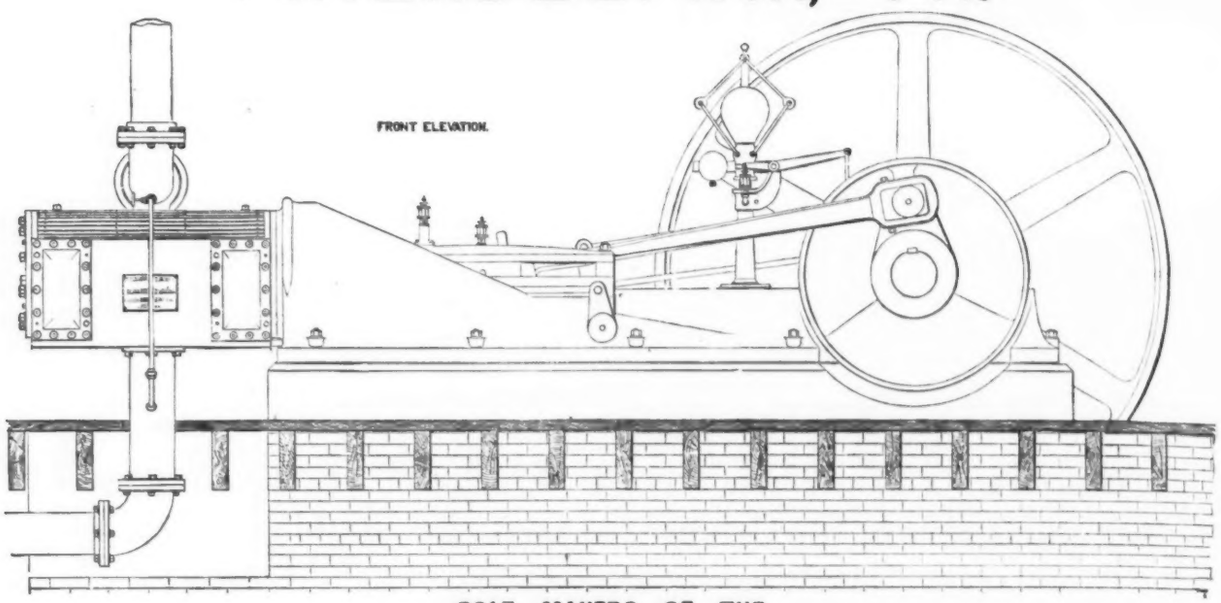
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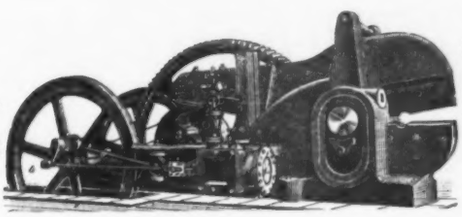
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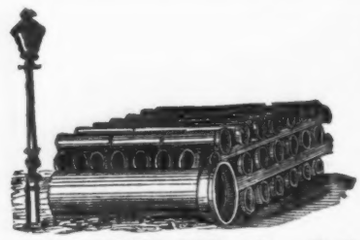
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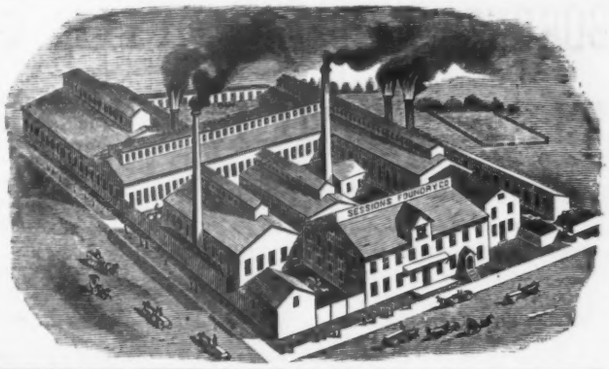
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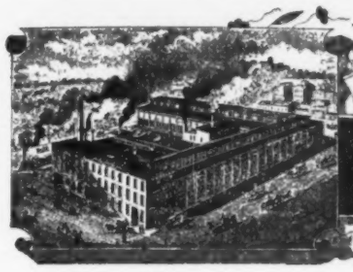
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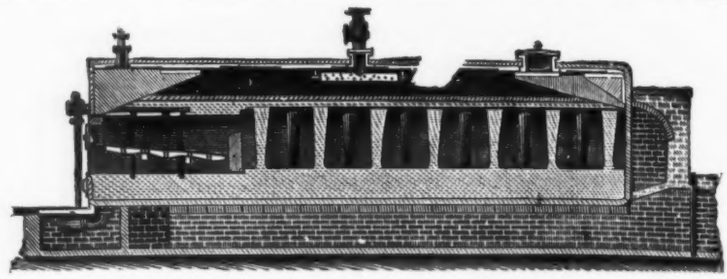
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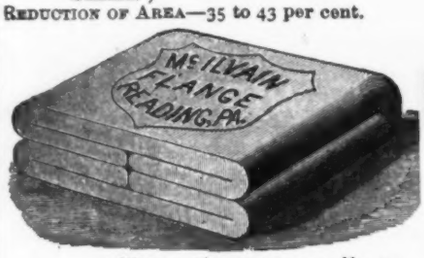
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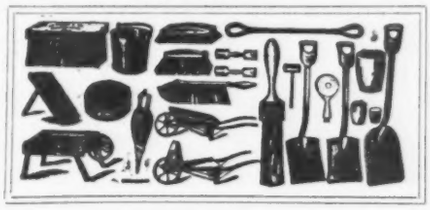
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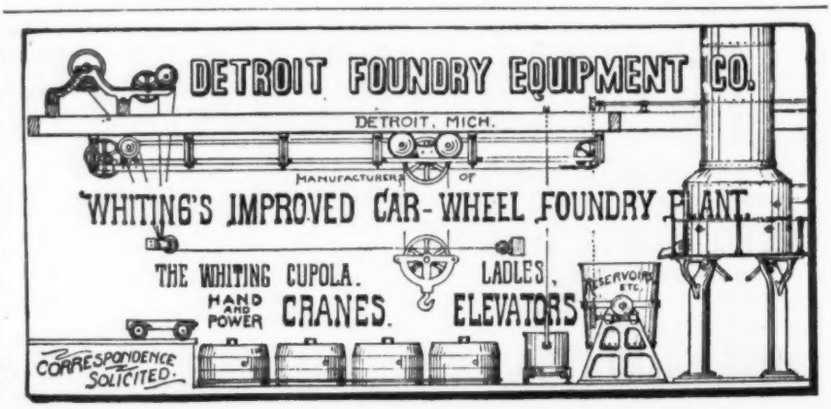
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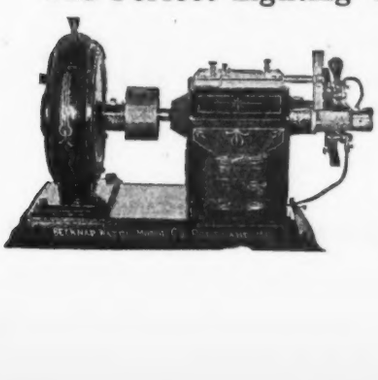
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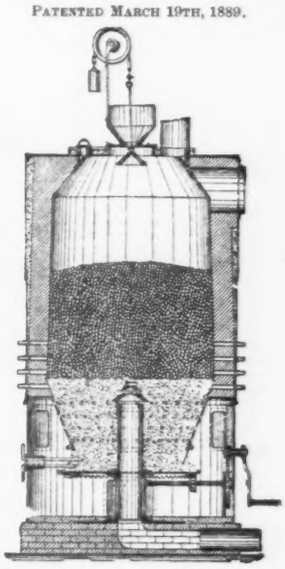
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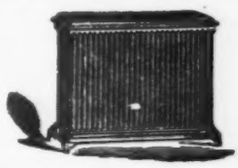
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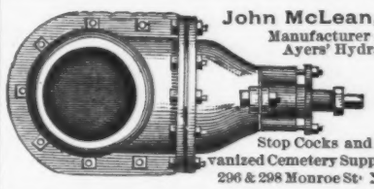
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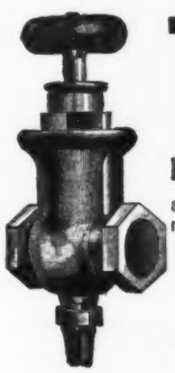
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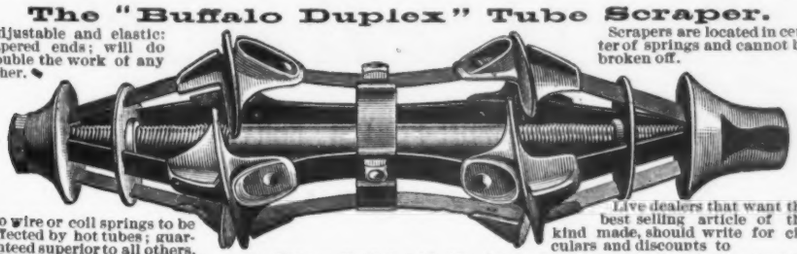
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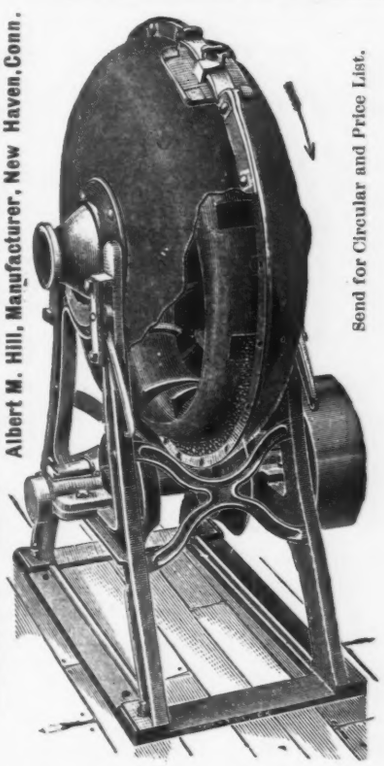
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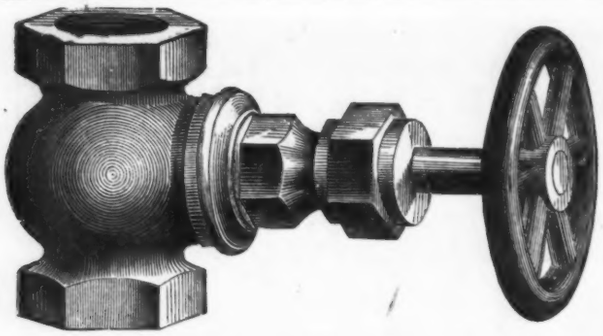
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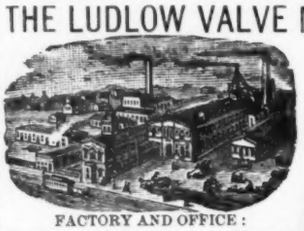
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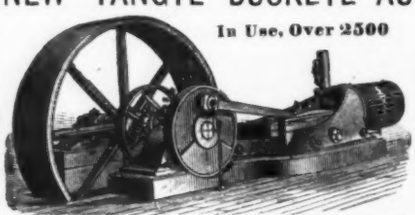


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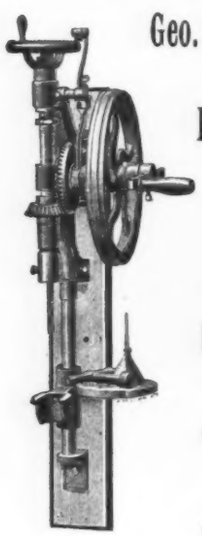
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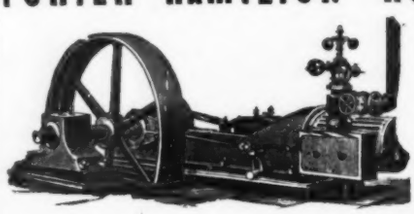
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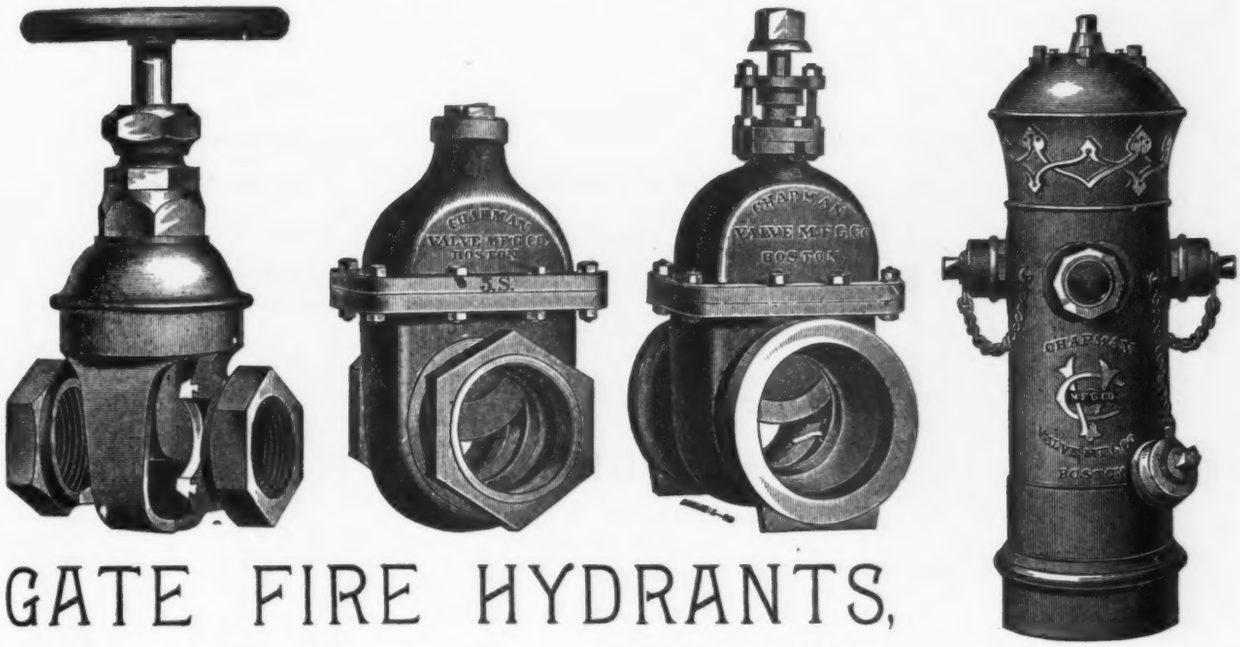
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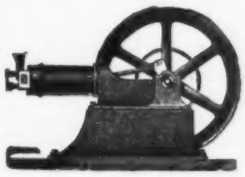
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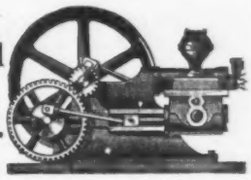


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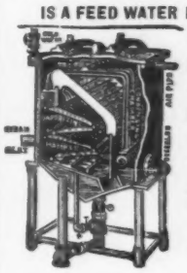
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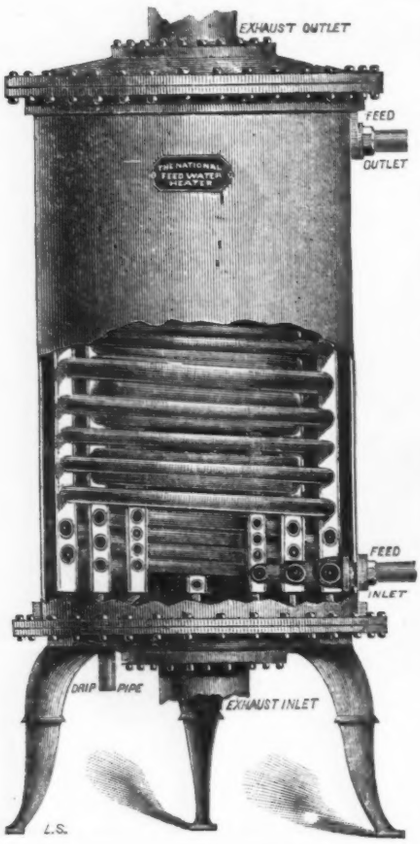
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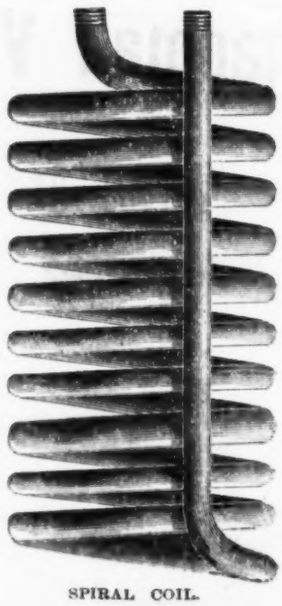
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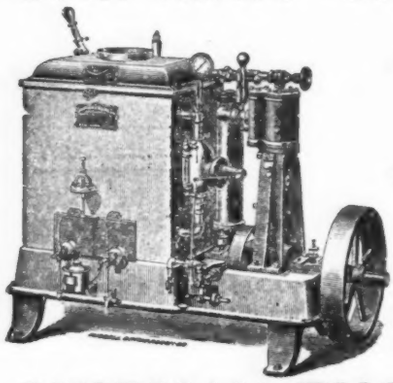
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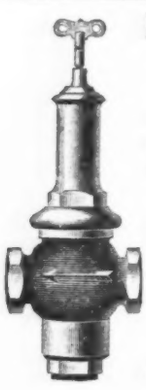
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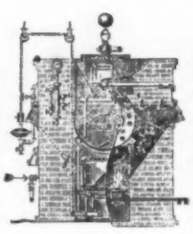
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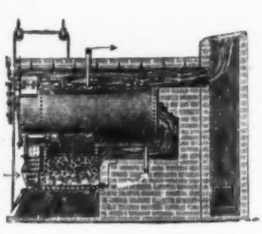
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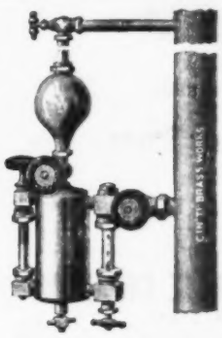
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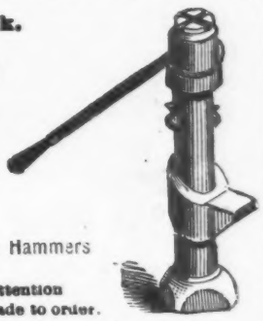
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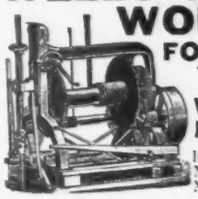


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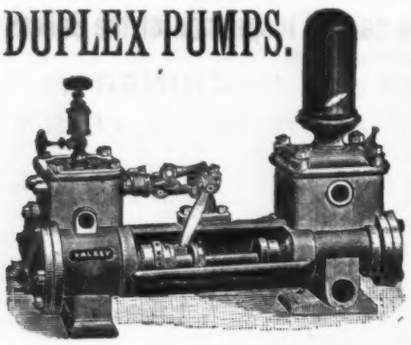
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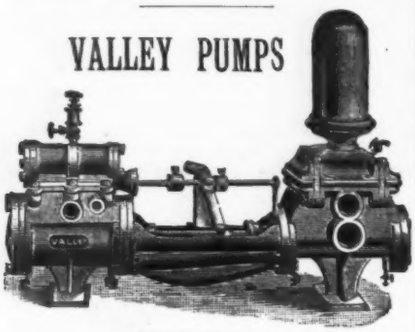
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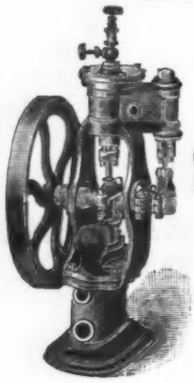
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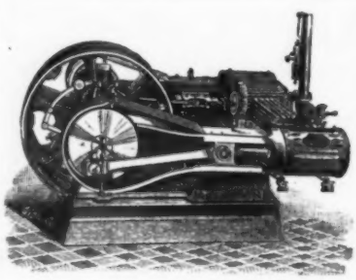
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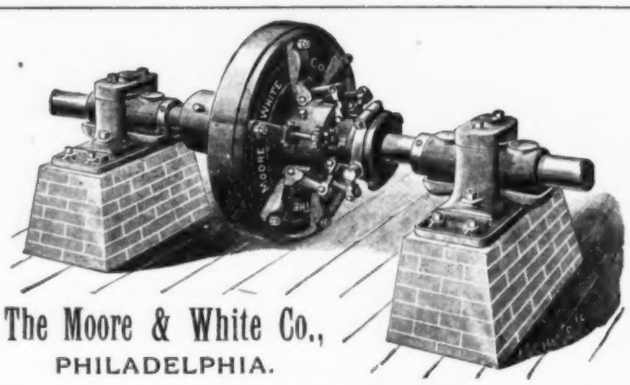
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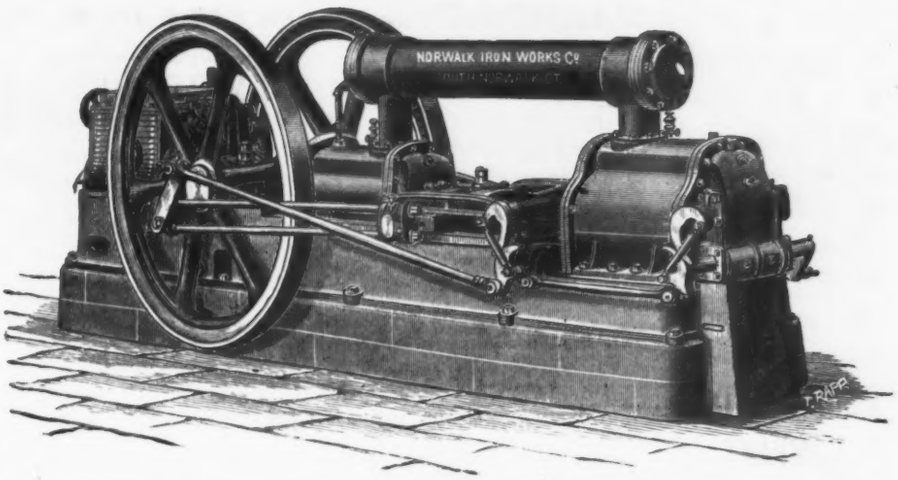


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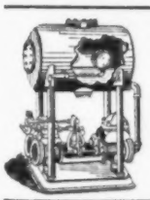
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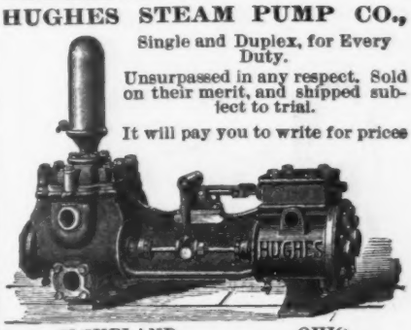
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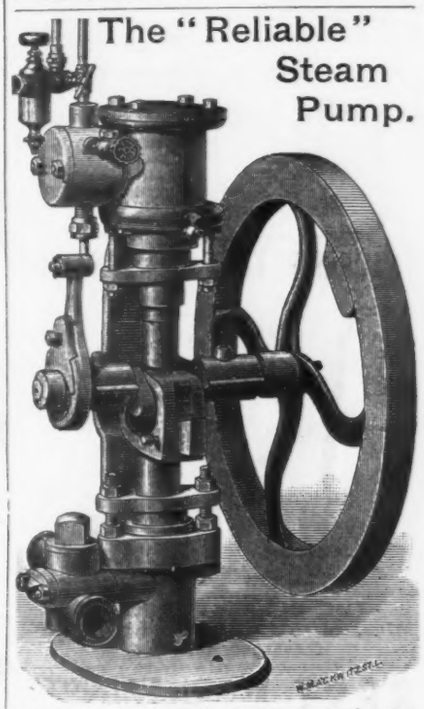
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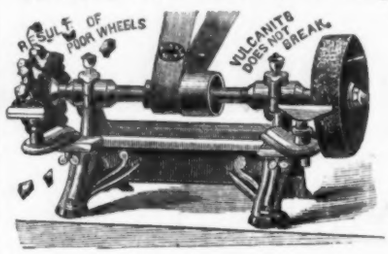
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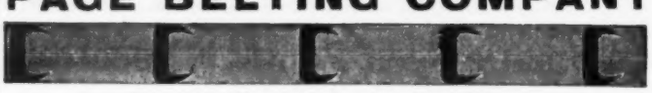
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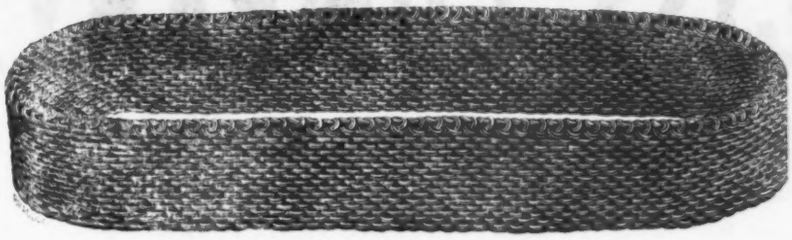


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To THE MIDGLEY WIRE BELT CO., Beaver Falls, Pa. Beaver Falls, Pa., September 1st, 1890.

Gentlemen: We are pleased to inform you that we have been running our entire factory for nearly two years with a 20-inch Double Tempered Wire Belt which took the place of a 24 inch double leather belt. Our power is a 15 x 3 Buckeye Engine. We covered our pulleys that the belt runs on with leather, and since we put it into use it has distributed the speed perfectly regular, which we never were able to do with leather on account of slippage. We have also an 8-inch Double Wire Belt 8 in. x 68 ft. long that drives our grinding machine for circular saw. It took the place of a 6-ply rubber belt made especially for us in Boston. It has now been in constant use more than a year, and has only been taken up twice in that time. The rubber belt lost over 12 feet of stretch in less than one year's use.

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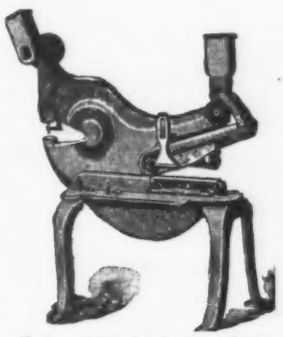
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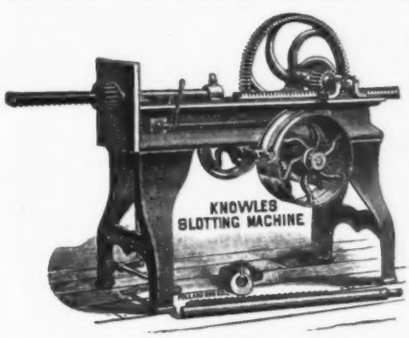
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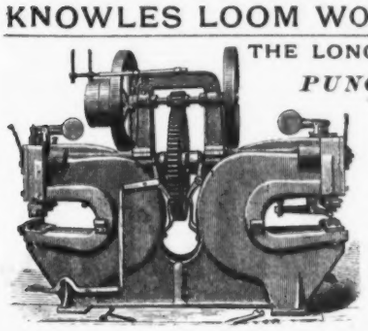
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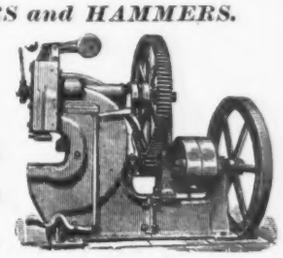
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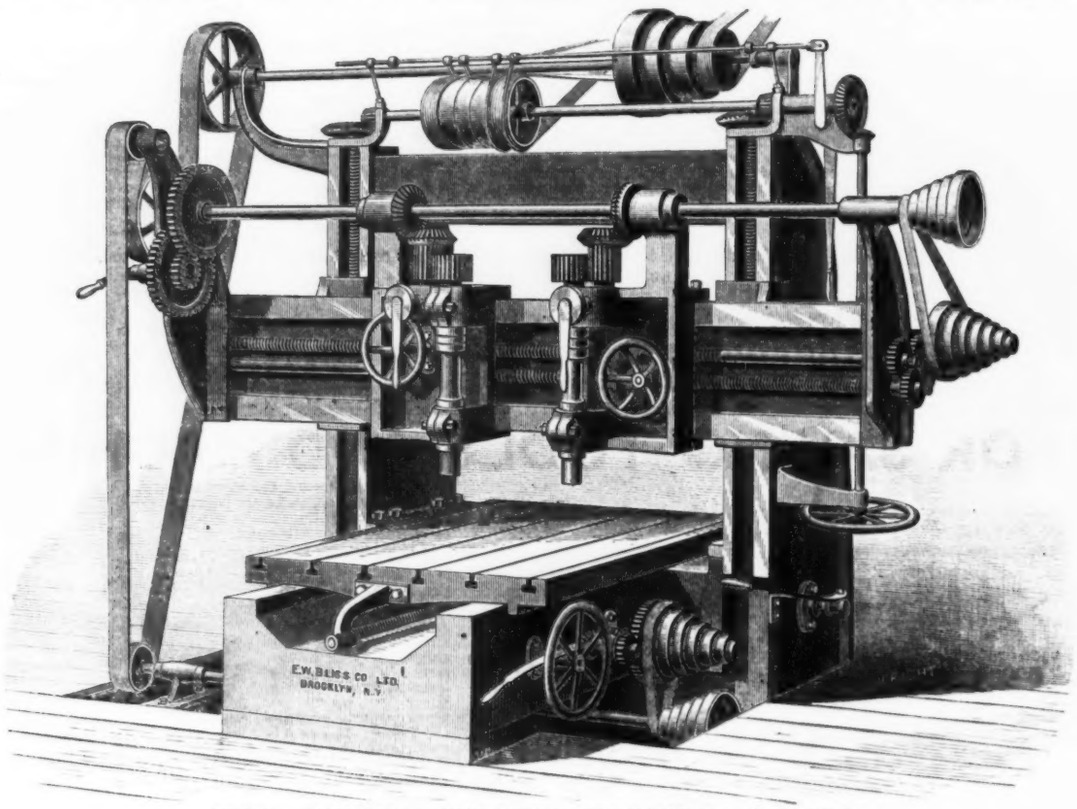


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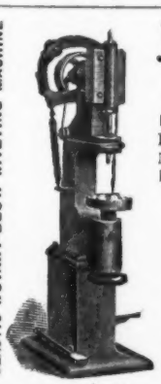
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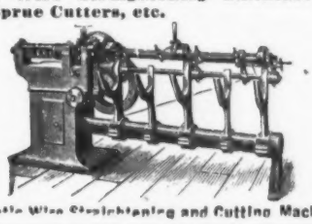


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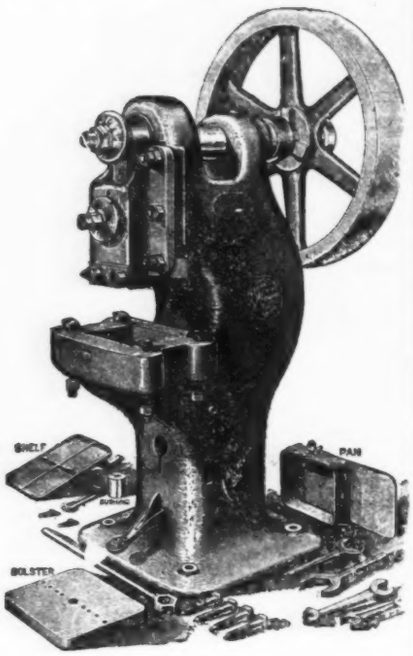
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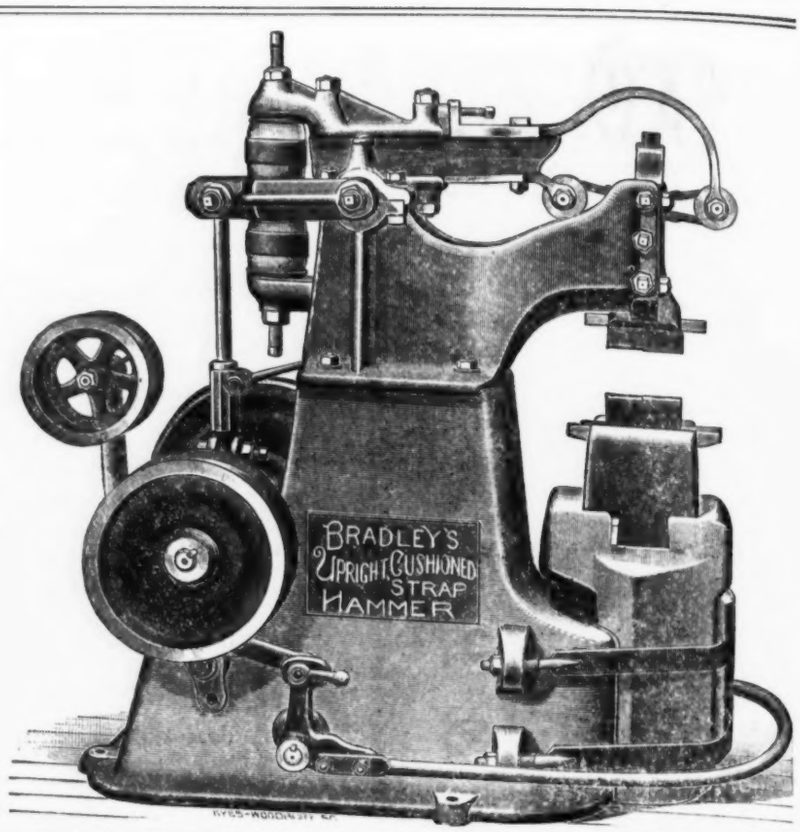
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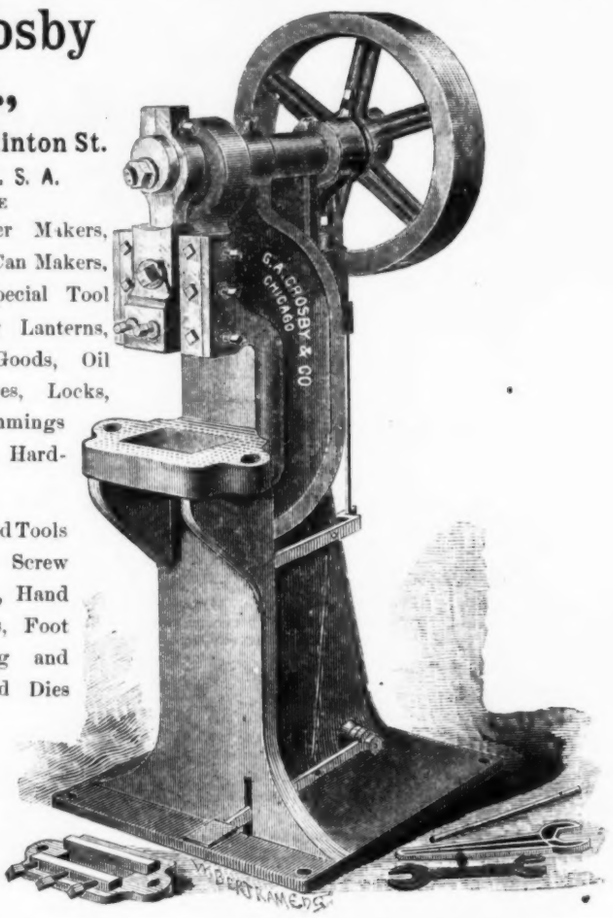
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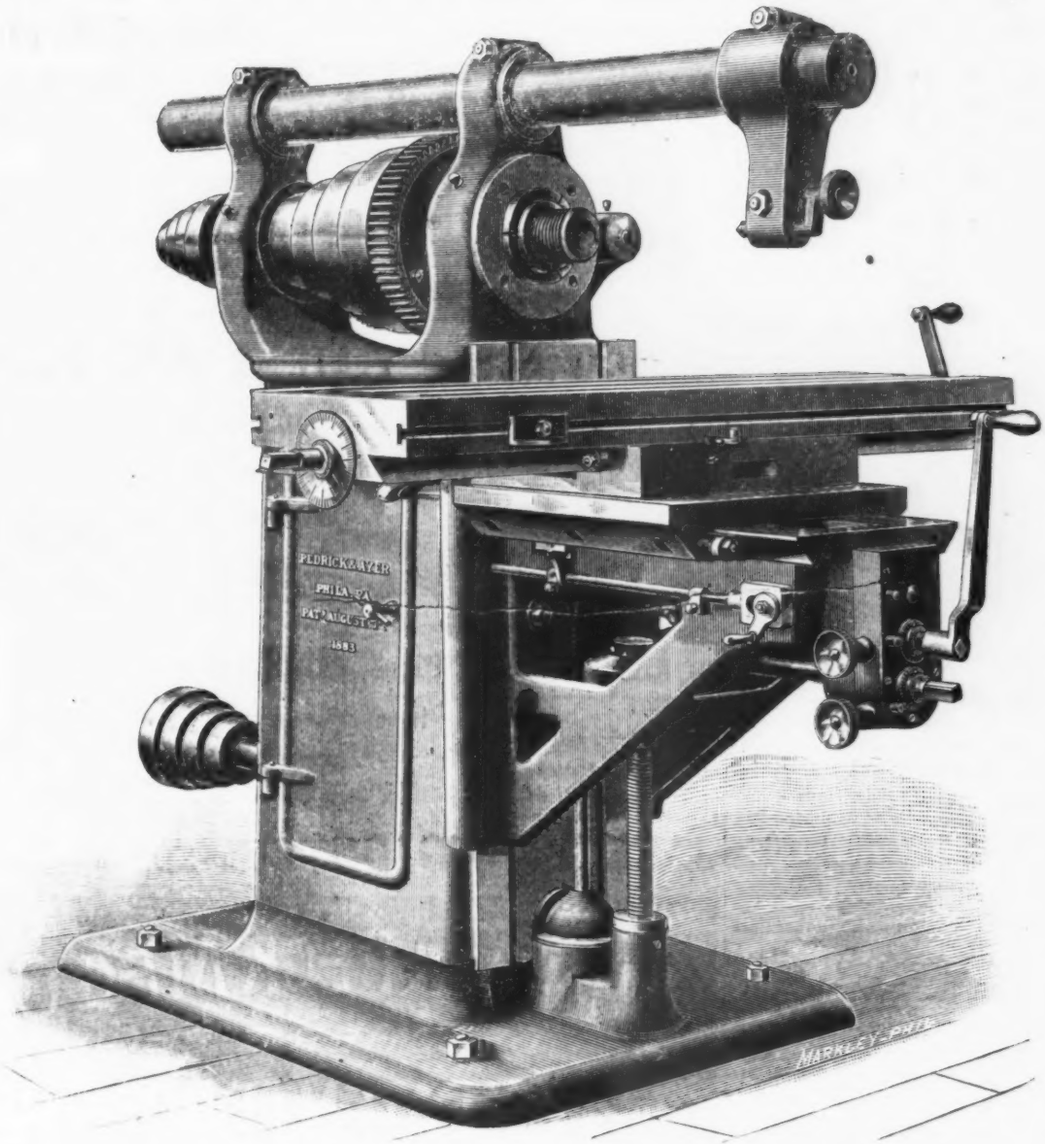
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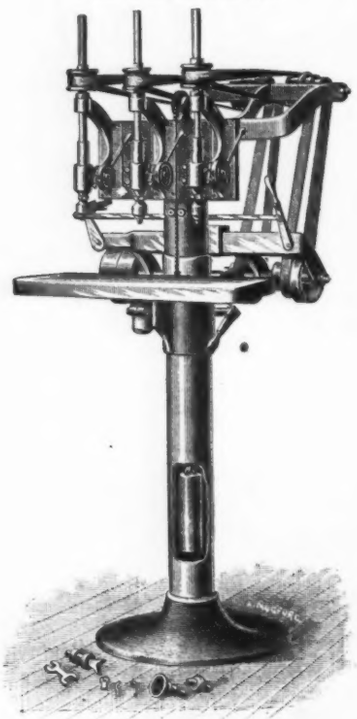
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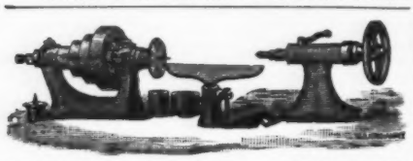
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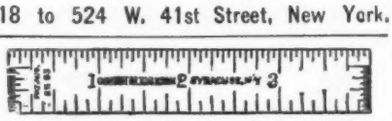
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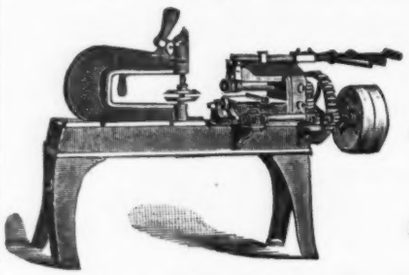
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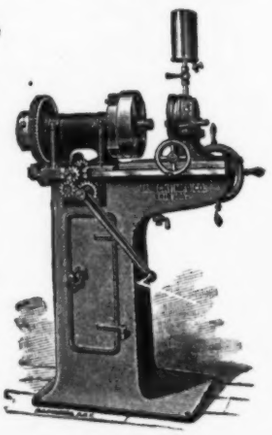
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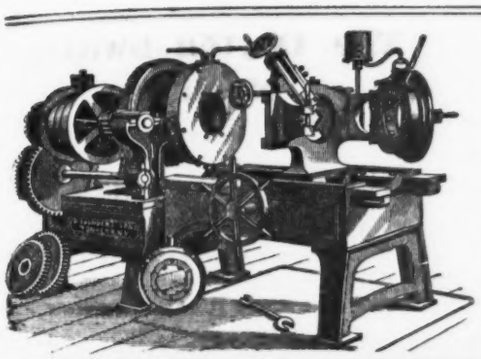
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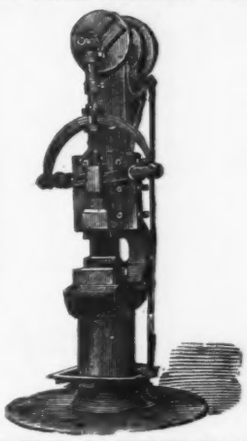


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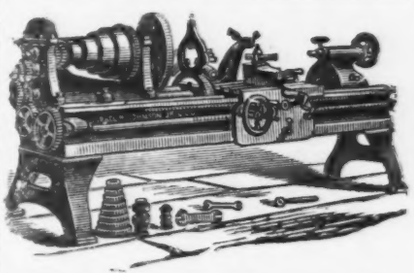
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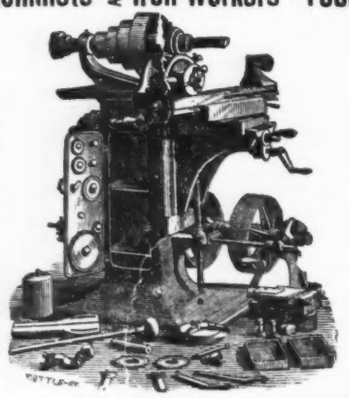
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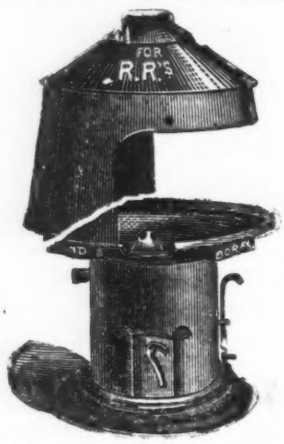
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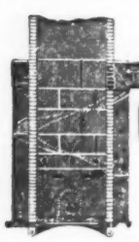
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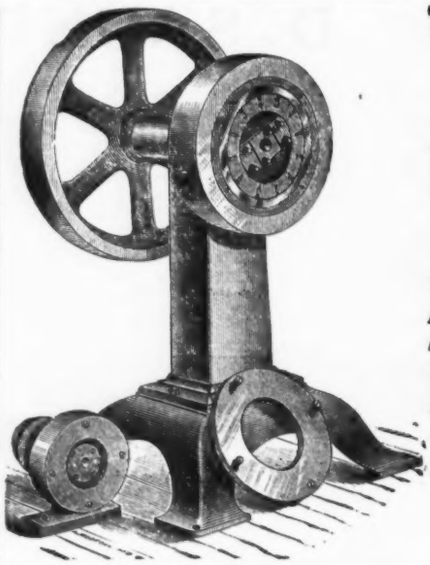


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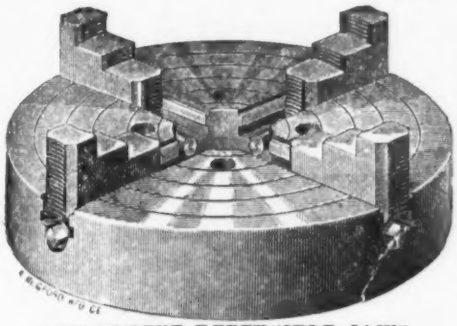
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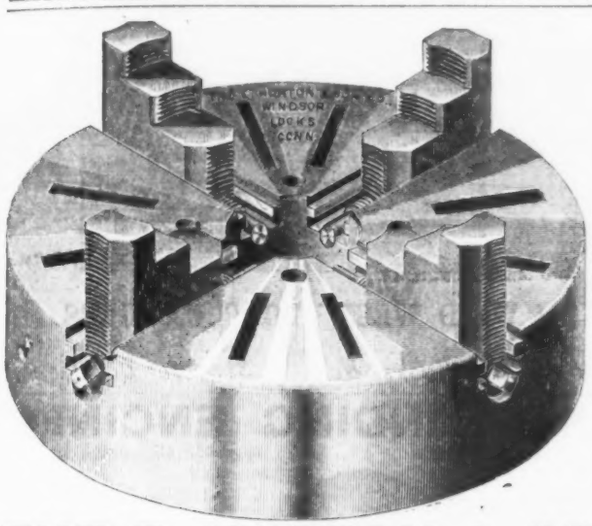
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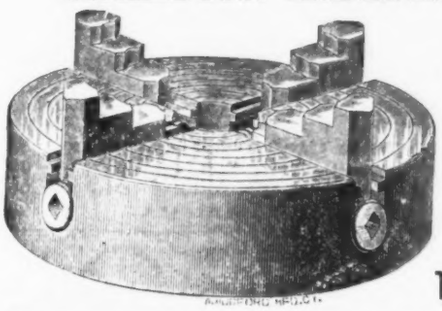
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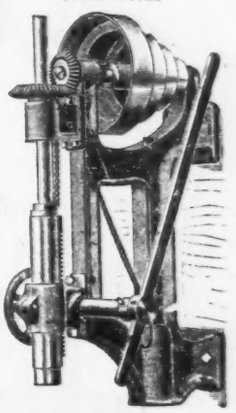
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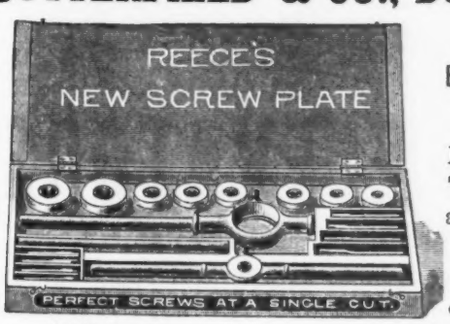


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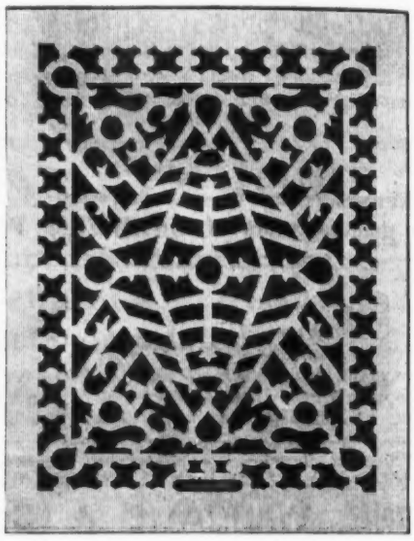
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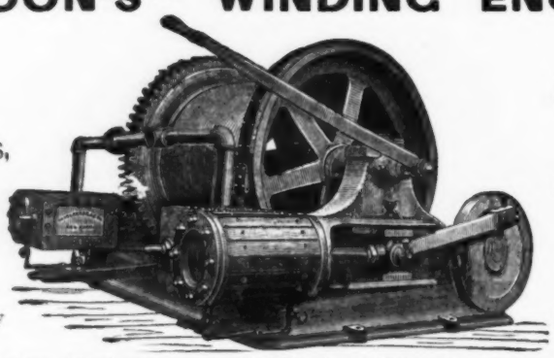
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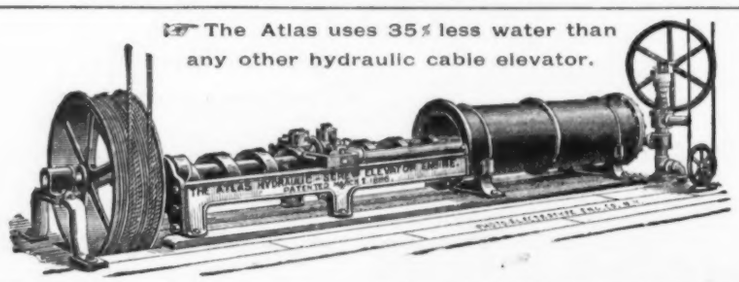
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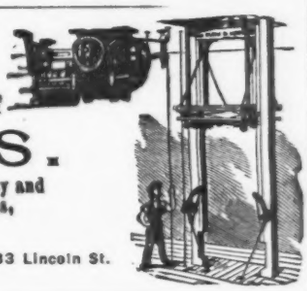
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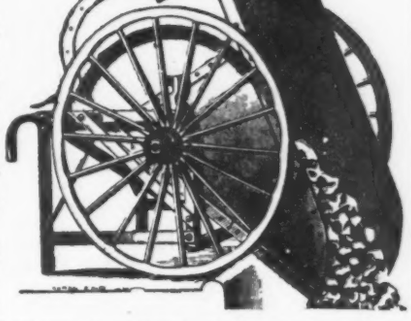
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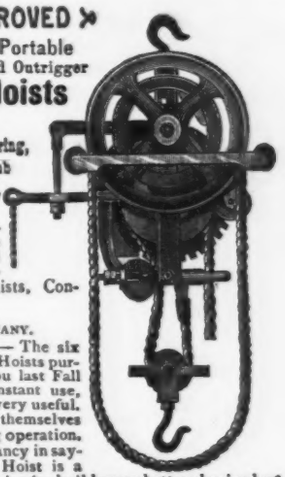
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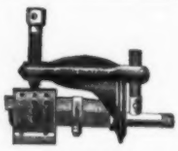


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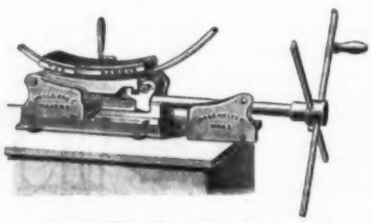



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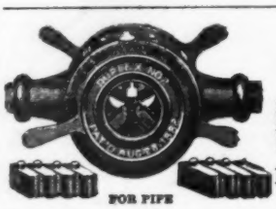
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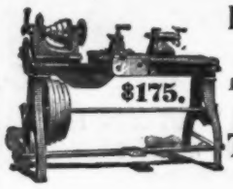
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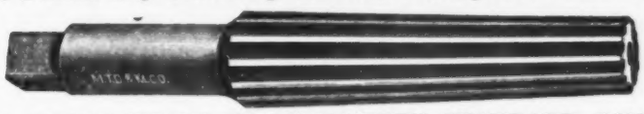
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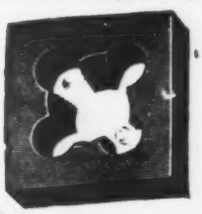


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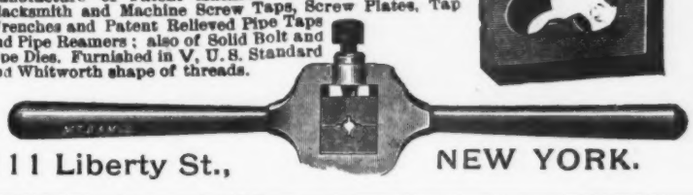
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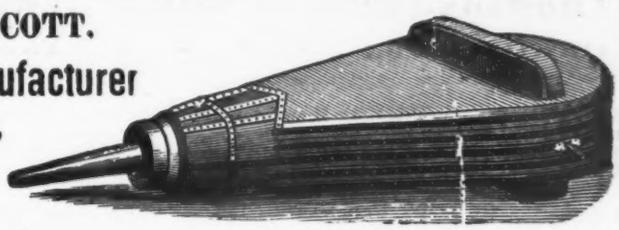
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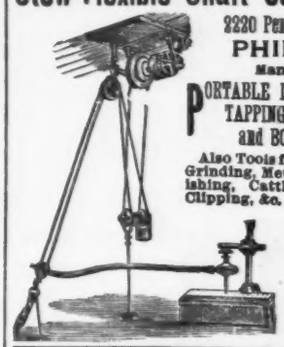


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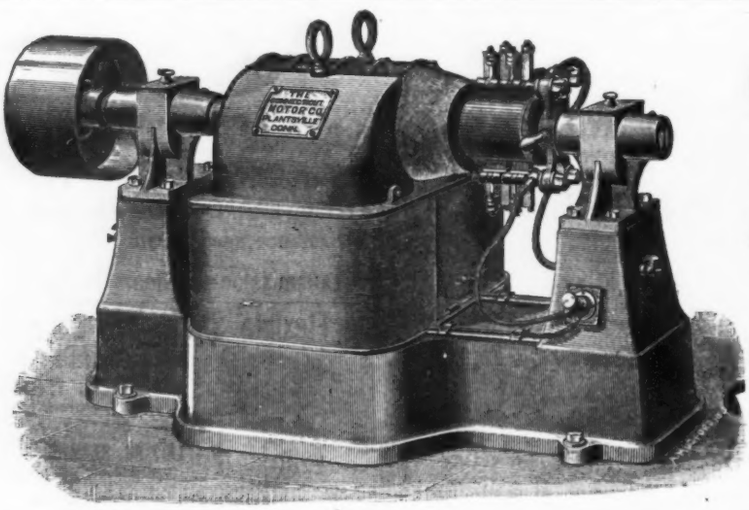
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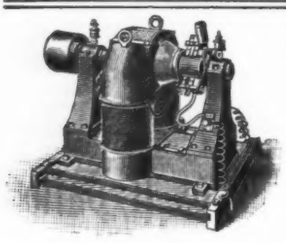
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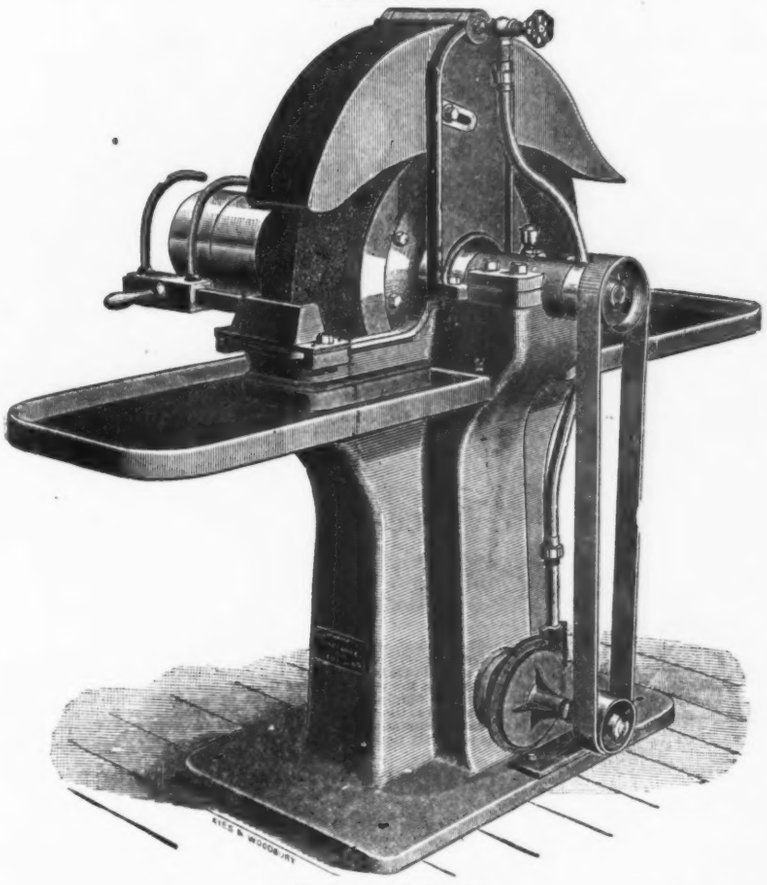
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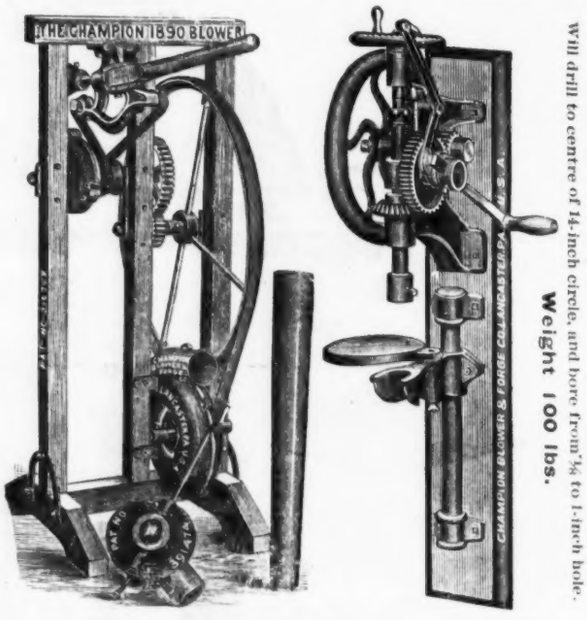


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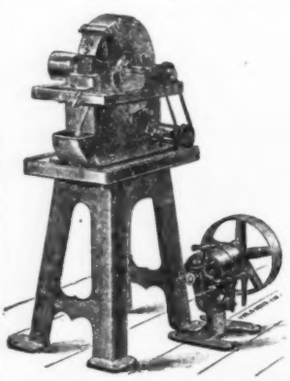
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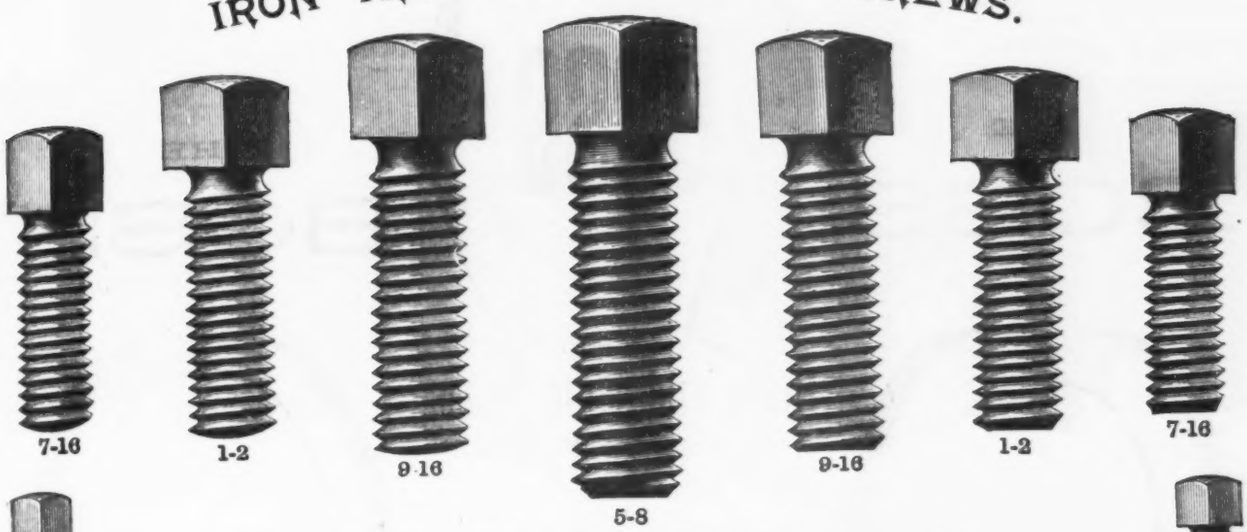
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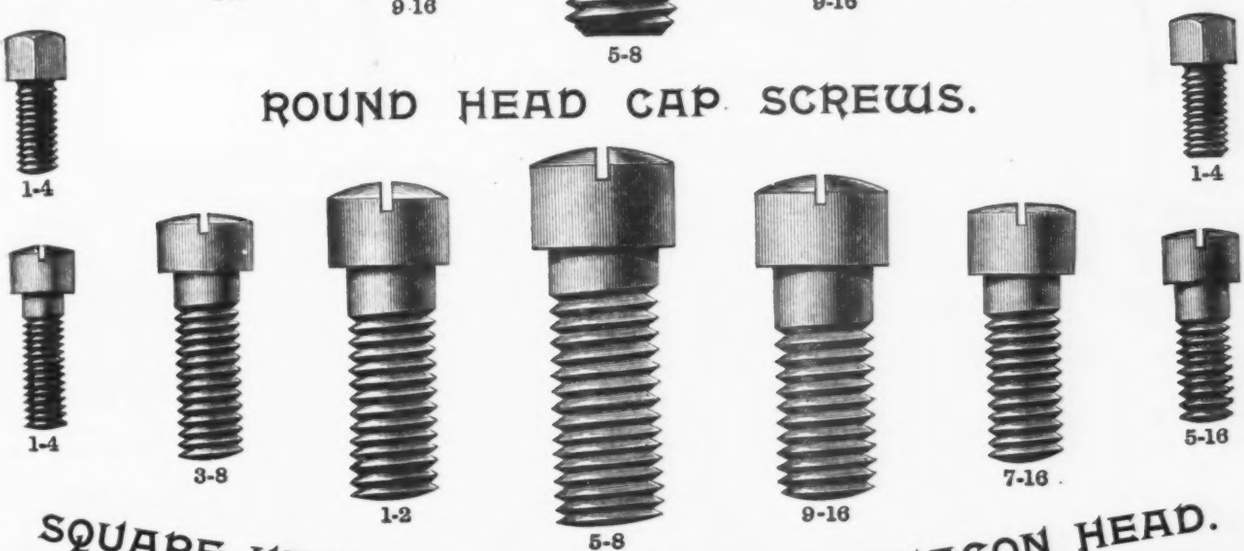
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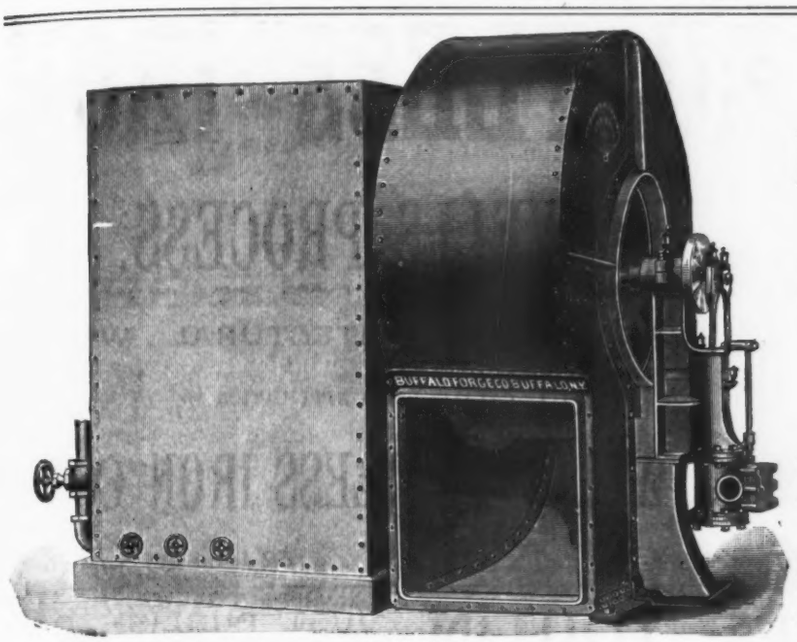
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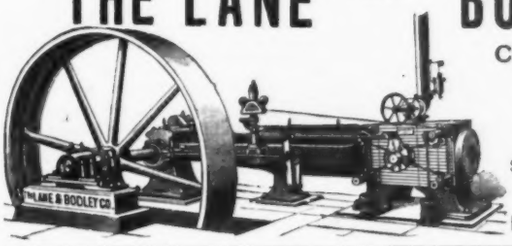
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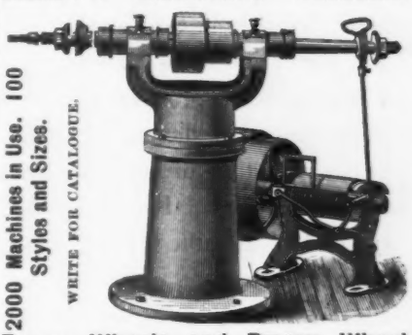
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" 36 in. x 28 in. x 10 ft.
1 " 60 in. x 66 in. x 24 ft. with 1 head.
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FOR SALE.—One I. P. Morris Blowing Engine, 84 in. stroke, 42 in. steam cylinder, 90 in. blowing cylinder. In perfect order.

One West Point Blowing Engine, 84 in. stroke, 40 in. steam cylinder, 90 in. blowing cylinder.

One Crane Bros. Steam Hoist, complete with iron frame, 8 in. cylinder, 9½ in. stroke, 36 in. drum with 14 in. face.

Parties wishing duplicate engine for their blast furnace or others about to build a blast furnace could not have a better opportunity than the above. All in perfect order. Can be seen at any time. Address

"MORRIS,"

Office of *The Iron Age*, 66 and 68 Duane St., New York.

Blowing Engine and Furnace for Sale Cheap.

Vertical Blowing Engine, 30 in. steam cylinder, 70 in. air cylinder (Tremaine Valve), 5 ft. stroke.
Worm Hoist, 24 in drum.
Both have been used in operating a 70-ton charcoal furnace. Replaced in enlarging plant.
Address "BLOWING ENGINE,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

For Sale.

An air hoist for a Blast Furnace, 68 ft. 6 in high, 32 in. diameter, with cages complete and in good order; about 70 hot blast pipes 14 ft. long, 7 in. inside diameter, good as new; four cinder carts.

E. & G. BROOKE IRON CO.,

Birdsboro, Pa.

LOCOMOTIVE FOR SALE.—BARGAIN.

Pole Road Locomotive, saddle tank type, built by Richmond Locomotive Works. 2 cylinders, 8 x 12 in.; gauge, 5 ft. 2 in.; almost new. 6 Box Cars, 16 ft. long, 8 ft. wide, 2 ft. high. Also Armington Sims Engine, 15½ in. x 24 in. cylinder. Automatic Atlas Engine, 16 in. x 24 in. cylinder., with 75 H.-P. Horizontal Tubular Boiler. Plain Slide Valve Engine, 16 in. x 24 in. cylinder. 15 H.-P. Hoisting Engine and Boiler, 8 in. x 16 in. cylinder. Worthington Duplex Steam Pump, 8 in. suc., 6 in. discharge. Knowles No. 7 Steam Pump, 6 in. suc., 10 in x 20 in. x 24 in. cylinder. 2 Hydraulic Presses and Pumps, 10,000 tons pressure each. Apply G. W. SHANKS, 28 Light St., Baltimore, Md

PLATE MILL.

FOR SALE CHEAP, 26 in. Plate Mill; Rolls 92 in. long; all in good order. For information apply to

MATTHEW GILL, JR.,

308 Walnut St., Philadelphia.

Mining Machinery.

FOR SALE—Ingersoll Air Compressor, 14 in. x 24 in.; Air Receiver, 4 ft. x 12 ft.; Drills, 3 in.; Double Friction Hoisting Engine, cylinders 10 in.; Pumps, one Worthington, 12 x 6 x 10 (good as new); Boilers, Pipe, Tools, &c., &c.; all in first-class condition and to be sold. Address

"MINER,"

Midvale, New Jersey.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address,

"MISSOURI,"

office of *The Iron Age*, 220 S. 4th St., Philadelphia.

For Sale at a Bargain

To anyone who wishes to purchase for their own use.

1 Pease Planer, to plane 24 in. wide, 22 in. high and 6 ft. long.

1 25-Light Dynamo for Incandescent Lights.

DANIEL KELLY,

51 North 7th St., Philadelphia, Pa.

FOR SALE AT A BARGAIN.—One of Brown's Patent Hoists in good condition, in use but a few months. For any further description and prices address

VULCAN IRON CO., Ltd.,

New Castle, Lawrence Co., Pa.

CUPOLA

FOR SALE.

We have a good second-hand Cupola which will melt with ease 10 tons iron in two hours. It is about as good as new and will be sold cheap. Write for particulars.

MEDINA MANUFACTURING CO.,

Medina, N. Y., U. S. A.

FOR SALE

At one-half less than actual cost, one R. R. Construction Dump Car adapted to standard gauge track; large capacity; never been used. Cost $80, will sell for $40, cash, f.o.b. cars New Castle. Address

VULCAN IRON CO., Ltd.,

New Castle, Lawrence Co., Pa.

THOMSON C. GILL & CO.,

210 S. Third St., - Philadelphia, Pa.

Dealers in all kinds of

SCRAP IRON, &c.

Correspondence Solicited.

WANTED.

Second-hand Profiling Machines, but little used; Jones & Lamson make preferred. Address, giving bottom price, dimensions and condition,

"PROFILING MACHINE,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

Two Cupola Furnaces, from 8 to 12 tons each. For terms, &c., address

W. M. HABIRSHAW,

159 Front St., New York.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

FOR SALE.

In West Chelmsford, Mass., all the Real Estate and Machinery formerly owned by the Hiscox File Co.; the real estate consisting of about 7 acres of land, together with the buildings and water power, and the machinery, being such as was used by them in the manufacture of files, machine knives, sword blades and edge tools. There is also on the premises a good 75 horse-power Harris-Corliss engine and good boiler, also a large amount of shafting, belting and supplies. This property is situated about five miles from Lowell, and is very easy of access by railway, with excellent facilities. The entire property will be sold very cheap, either as a whole or in part, and will afford some party an excellent chance to enter into this business. For terms, &c., inquire of

J. W. BENNETT, Lowell, Mass., or
F. G. SARGENT, Graniteville, Mass.

FOR SALE.

A Corliss Upright Steam Engine, 40 in. cylinder, 42 in. stroke, with 40 ton fly wheel, made by Corliss. Also a train of 24 in. Rolls for rolling Steel Plate 16 in. down to 16 gauge; the housings are heavy enough for a three high 30 in. train; they were made for a 30 in. Blooming train; both engine and train are in first-rate condition, and can be seen at the Old Norway Steel and Iron Works, South Boston; any communication addressed to THOS. GOGIN, 61 Thomas Park, South Boston, will have prompt attention.

FOR SALE. BLOWING ENGINE.

Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address

JAMES LEFFEL & CO.,

Springfield, Ohio.

FOR SALE, SECOND HAND

We have several Feed Water Heaters of various makes and sizes, in first class condition, for sale cheap. It will pay you to consult us before ordering.

BENJ. F. KELLEY & SON,

91 Liberty street, New York.

For Sale or Lease.

A Rolling Mill in the city of Chicago, well equipped and located for city trade. Capacity of about 100 tons of bar iron per day. It has one 10 in. and one 18 in. train, also one 18 in. muck train. Owners will take all or part of pay in bar iron. For particulars address

"ROLLING MILL,"

office of *The Iron Age*, 59 Dearborn St., Chicago.

For Sale.

50 tons of new castings of Ford Hot Blast Pipe Stoves; can be seen at our works; will sell at 1 cent per lb.; cost 2½ cents.

BUFFALO STEAM FORGE, Buffalo, N. Y.

FOR SALE.

An old-established Wholesale General Hardware Business, located at Burlington, Iowa. Has the advantages of both rail and water communications, and one of the best distributing points on the Upper Mississippi River; good trade already established and am to-day doing a good business; stock on hand about $70,000; have five salesmen on the road, do business in Western Illinois, Northern Missouri, Eastern Nebraska, Southern Dakota and Minnesota and a large portion of Iowa.

The largest portion of my trade comes from Iowa. The territory can be extended and trade increased if desired. This is a rare opportunity for any one wishing to step into a good business already thoroughly established. Reason for wishing to sell out—poor health. For any information desired pertaining to the business and location, I would refer you to Ross & Fuller, 33 Chambers St., N. Y.; Clement M. Biddle & Co., Philadelphia; the National State Bank of Burlington, Iowa, or the undersigned

LYMAN H. DRAKE.

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CLIMATIC PARADISE OF THE U. S.

No Snow. No Cyclone.

A Store For Sale.

Good will and stock of about $4,000 in Hardware' Crockery and House Furnishing goods. Price of the two-story brick building (21 x 48 feet), garden and yard (together 12,131 square feet) $7,000. The city of Anaheim (population 1,500), the oldest settlement of Southern California, is surrounded by an extensive farming country, has the finest drinking water and has for healthfulness no rival on the coast. It is situated about 26 miles southeast of Los Angeles and 14 miles from the Pacific Ocean. The store lies between the Southern Pacific and Santa Fé Railroad depots. Address: Charles Pamperl, Anaheim, Orange County, California.

FOR SALE.

Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock. $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

Address "BEST,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
338 and 342 E. 7th St., St. Paul, Minn.

ESTABLISHED BUSINESS.

A clean stock of hardware, factory supplies, housefurnishing goods, stoves and tinware, located in a growing city of 16,000 inhabitants near New York, doing a business of $30,000 annually; business could be increased; would sell stock at market prices; good reasons for selling. Address

"CHARLES,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

CAN WE SERVE YOU?

If you have a stock of Hardware to SELL in any city or town in the U. S

If you want to BUY a stock of Hardware in any city, town or village in the country.

If you want a traveling salesman for Hardware.

If you want a position as traveling salesman for Hardware.

If you want a tinner.

If you are a tinner and want a position.

Write the MERCANTILE EXCHANGE,
Macon City, Missouri.

All correspondence confidential.

135 ACRES OF LAND

in Wyandot County, Ohio, to exchange for a Stock of Shelf Hardware in Ohio. Address

A. J. FREDERICK,
Carey, Ohio.

A MANUFACTURING COMPANY,

who will have from $75,000 to $100,000 paid up capital, wish to enlarge their works and will seek new location where good railroad facilities and cheap fuel can be obtained; offers of grounds and buildings, with expense of moving, will be considered.

Address

HENRY SMITH, Manager,

office of *The Iron Age*, cor. Fourth and Main Sts., Cincinnati, O.

TO MANUFACTURERS.

A man with ample experience in Wholesale Hardware, Stamped Ware, Cutlery and Tools, is prepared to make engagements for the ensuing year. Address

"TOOLS,"

office of *The Iron Age*, 59 Dearborn Street, Chicago.

Manufacturers' Agent.

I am desirous of representing manufacturers of first-class Hardware, Cutlery and Tools, with headquarters in Chicago.

Address

C. B. JAMES,
98 Lake St., Chicago, Ill.

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need apply in person, with references, to

THE EATON, COLE & BURNHAM CO.,
82 & 84 Fulton St., New York.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot, unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.

WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

FACTORY FOR SALE.

A commodious and well-built brick Shop, 40 ft. x 120 ft., two stories high, with first floor clear of posts; engine and boiler house attached, fitted with shafting, heating apparatus, &c.; with additional lot 55 ft. x 140 ft. connected, all for sale at a low price; reason for selling, new shop twice the capacity being built. Terms and prices can be obtained by referring to

THE NATIONAL PIPE BENDING CO.,
New Haven, Conn.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

On reasonable terms, an improvement in Butt, Strap, T and Gate Hinges, patented Sept. 16th, 1890. Strong and durable. Can be packed in boxes as shelf hardware. Manufactured and galvanized at one-fourth the price of plain iron now in use. Address "B.," 663 N. 13th Street, Philadelphia, Pa.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.

THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

FOR SALE.

$5000 stock of Hardware, Lumber and Stoves, with good business established in centre of Southern Illinois fruit belt.

T. B. RHODES, Anna, Ill.

A RARE OPPORTUNITY.

We offer for Sale a stock Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A quarter interest in the largest hardware establishment in a growing Western city of nearly 100,000 inhabitants, doing a business of $250,000 annually. Address

"294,"

office of *The Iron Age*, 66 and 68 Duane street, New York.

WHY NOT

send description of any article or material you wish to sell to one who makes it a specialty of putting the seller in direct communication with the buyer, and save commisions. Write for particulars and references anyhow to

H. H. MANSFIELD,
52 Wall street, New York.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

What Have You You Want Sold?

A thoroughly practical business man, who will start on a business trip through the South and Southwest about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address

"TWO-THIRDS,"

office of *The Iron Age*, 66 and 68 Duane st., N. Y.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

Manufacturers desiring to secure trade in

NEW ORLEANS

and the

SOUTH

through a long established commission house, please address P. O. Box No. 186, New Orleans, La.

FOR SALE.

150 Tons 35-lb. STEEL T RAILS. Second-hand, but suitable for relaying.

THE PIQUA ROLLING MILL CO.,
Piqua, Ohio.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

FOR SALE.

A well-assorted stock of Hardware, Stoves, Tinware and Tinners' Tools (no dead stock), with a good, well-established trade, located in one of the best towns in New York State; population 2000; stock will invoice $5000 to $6000; will either rent or sell store with the stock; terms easy; have other business that takes our time and cannot attend to both. This is a rare chance. Address at once

"NO. 101,"

office of *The Iron Age*, 66 and 68 Duane St., New York.

WANTED.—Dealers in Weather Strips to handle Burcaw's Dust and Storm Proof; best strips made; they sell well at a good profit. Send for prices and circular.

F. P. BURCAW & CO., Sole Man't'rs,
Hazleton, Pa.

FOR SALE.

The controlling interest in one of the largest and best equipped Pocket Cutlery Manufactories in the United States. Water power and an engine if neccessary by reason of accident.
Address
"POCKET CUTLERY,"
office of *The Iron Age*, 66 and 68 Duane St , N.Y.

Free Land, Gas (Fuel), fine R. R. Facilities

to a responsible factory wanting to change and better its location. One Cincinnati Factory saves $125 per day by moving, 10 per cent on $300,000 invested. Address
PHILETUS EYCKE,
Washington, C. H., Ohio.

IF YOU HAVE

any article you wish made on royalty or percentage and sold, please send full particulars to
H. H. MANSFIELD,
52 Wall Street, N. Y.

For Ship Building or Tin-plate.

300 to 750 feet front on Delaware River, 1000 feet deep, including well equipped machine shop, foundry erecting shops, pattern shops, brass foundry and store room; will sell or join company to increase business in any direction, no better location on Delaware River; also R. R. facilities. For plans &c., apply to
W. G. HOWELL,
3343 North 17th, St., Philadelphia.

WANTED.

15 in., 18 in., 24 in. and 30 in. lathes, 2 planers 2 drills, 2 shapers, 1 Fox lathe and 1 Boring Mill for cash and houses paying 10 per cent,
ISAAC GRAHAM,
1302 N. 28th St., Philadelphia.

FOR SALE.

On account of poor health I wish to sell at once, to the party making me the best offer, my stock of builders' and general hardware, tools, paints, oils, &c. Business has been established nearly six years; have two exclusive agencies on builders' hardware which bring good sales and large profits; stock invoices about $6000; yearly sales $17,000; expenses very low; located in Newark, N J. Address JOHN A. CLARK, 85 Springfield Avenue, Newark, N. J.

FOR SALE.

A half interest in an established and well paying business handling Pig and Bar Iron, Steel and Cast Pipes, with headquarters at Nashville, Tennessee, and having an established trade in the states of Tennessee, Georgia, Mississippi, Alabama, Florida, North and South Carolina and Texas. Will sell only to a man who thoroughly understands this line of business and who can furnish satisfactory credentials as to character, ability, &c. For further particulars address "FACTOR," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOR SALE.

One second-hand, Corliss Engine, Wetherill make, 100 H.-P., size 16 x 36, first-class running order. Can be delivered immediately.
One second-hand Corliss Engine, 26 x 48 inch.
One " " " 30 x 72 "
Now running; can be delivered in two months.
ROBERT WETHERILL & CO.,
Chester, Pa.

For Sale Cheap.

A Tack and Small Nail Factory in good running order; equipped with all necessary tools; good reasons for selling. Address
FRANK W. McLEAN,
Hamilton Building, Pittsburgh, Pa.

Second-Hand Rails

FOR SALE.

100 tons second-hand 38 lb. Steel Street Rails with Channel Bars in good condition, fit for relaying.
HENRY LEVIS & CO.,
234 South Fourth St., Philadelphia, Pa.

FORK HANDLES CHEAP.

We offer to car lot buyers a large quantity of dry 4½ and 4⅝ foot long manure Fork Handles. Will bend, chuck, bore and belt if desired.
The IOWA FARMING TOOL CO.,
Manufacturers,
Fort Madison, Iowa, U. S. A.

16 lb. RAILS.

For sale lot of 16 lb. and Light T Rails, fit to relay. Inquire MATTHEW GILL, JR., 308 Walnut Street, Philadelphia.

EUGENE BISSELL, Auctioneer.
HAYDOCK & BISSELL,
Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO
WHOLESALE
HARDWARE AUCTIONEERS,
19 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

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Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.
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Specially arranged for the use of
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FOURTH EDITION.
An entirely new book, enlarged, improved, perfected. The best and most practical book of the kind ever published; 129 pages, over 40,000 computations, absolutely correct; every page can be instantly referred to; bound in leather; 4x6 inches; price by mail *Three Dollars*. Address
IVISON BLAKEMAN, TAYLOR & CO., New York.
BECKTOLD & CO., 210 Pine Street, St. Louis, Mo.

A New and Splendid Companion to all the Metal Industries.

Fully abreast of the latest inventions and discoveries, as well in the largest and coarsest as in the smallest and finest of metal work.

JUST READY.
Price, $2.50.
Free of Postage to any address in the world.

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Metal Worker's Handy Book
—OF—
RECEIPTS AND PROCESSES.

Being a collection of Chemical Formulas and Practical Manipulations for the working of all the Metals and Alloys, including the Decoration and Beautifying of articles manufactured therefrom, as well as their preservation. Edited from various sources by William T. Brannt, editor of "The Techno-Chemical Receipt Book" and "The Metallic Alloys." Illustrated by 63 engravings. One volume, over 500 pages, 12mo, elegantly bound in scarlet cloth, gilt, closely printed, containing a vast amount of valuable matter on all the Metals and Alloys, not to be found in any other book in the English language.

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POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,
PORTLAND, OREGON.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.
30-INCH LATHE WANTED AT ONCE.
FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

COMPETENT DRAUGHTSMAN familiar with details of iron construction of Bridges and Buildings. Address "R. B. 80," office of *The Iron Age*, 66 and 68 Duane St., New York.

SUPERINTENDENT WANTED.—A capable and experienced manager who has means to invest and desires to take charge of manufacturing department and identify himself with an extensive and prosperous Wood and Iron Working Establishment (Stock Co.) having a record of 20 years and located near Chicago. Address "INDUSTRY," Box 64, office of *The Iron Age*, 66 and 68 Duane St., New York.

A GOOD MECHANICAL Draughtsman; state experience. Address "G. R. G," office of *The Iron Age*, 66 and 68 Duane St., New York.

TRAVELING SALESMAN wanted in every State, to sell the Smolley "T" Steel Fence Post as a side line, on commission; name territory covered; samples furnished and commission promptly paid. Address JOHN G. SMOLLEY, Connersville, Ind.

A PUSHING ENERGETIC blacksmith competent to take charge of our smith shop; young man preferred, WEBER WAGON CO., Chicago, Ill.

NAIL SALESMAN, young man with large local acquaintance and trade; advise age, salary wanted, give references, present or last employers, &c. "LOCAL," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A PHILADELPHIA Tin Plate and Metal House, on or after January 1, 1891, a Salesman acquainted with the Tin Plate and Metal Trade throughout Wisconsin and the Northwest, to make his headquarters at Chicago or Milwaukee. Address, with reference, "TIN PLATE," office of *The Iron Age*, 220 South Fourth St., Philadelphia.

JANUARY 1st, 1891, a Salesman thoroughly acquainted with the Tin Plate and Metal business, to travel Northern and Central Ohio, Indiana, Illinois, Northwestern Pennsylvania, making Pittsburgh as headquarters. To a suitable person a liberal salary will be paid. Address Box 477, Philadelphia Post Office.

MECHANICAL ENGINEER with experience in elevator work and competent to do estimating, laying out, etc., in the office and works. Address P. O. Box 211, Chicago, giving age, experience, references, salary, etc.

TREASURER WANTED.—An experienced financial manager who can control $10,000 to take the position of Treasurer, who has ability and experience in manufacturing. The works are situated in one of the most flourishing and enterprising cities in the Northwest. First-class references given and required. Address "A. D.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

FIRST-CLASS STOVE and Hardware Salesmen to take one good selling specialty on a commission. Address W. H. PECKHAM, Minneapolis, Minn.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING CO., Cuba, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

POSITON to take charge of Hardware Manufactory. Thoroughly posted in all its details, and a practical mechanic; good reference. Address "POTTS," office of *The Iron Age*, 66 and 68 Duane St., New York.

A YOUNG MAN (21) with five years experience in one of the leading wholesale Manufacturing Builders' and General Hardware establishments in this city desires a situation; unquestionable references. Address "B. M.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A YOUNG MAN with three years' experience in London house, England, wishes to obtain a position as Salesman in a Chicago Hardware house, the first of the year; can give good references; am at present with a wholesale house. Address "CORAL," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOREMAN BLACKSMITH is open to engagement; 27 years practical experience; satisfactory references furnished. "T. 5," care of Lord & Thomas, Chicago.

AN EXPERIENCED SALESMAN, fully acquainted with Tinware and House Furnishing Goods, to travel in New York State; to a thorough, first-class man a liberal salary will be paid. Address "STAMPED WARE," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MAN with experience in manufacturing hardware specialties and with an extended acquaintance with Western jobbing trade is open for an engagement with manufacturer either on road or in factory; best of references. "PRACTICAL," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, engines and boilers, roof construction, sugar machinery &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MAN with an extended experience and acquaintance with the jobbing hardware and sporting goods trade throughout the West is at present open for an engagement as salesman; refers to present employers; would prefer to represent some manufacturer of standard goods or hardware specialty. Address "STANDARD," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MAN wishes a position as foreman or layer out in a boiler shop; over 18 years' experience in marine shop, and A 1 reference. Address "O. L.," office of *The Iron Age*, 66 and 68 Duane St., New York.

TO SHEET BRASS MANUFACTURERS.—A man with twenty two years' experience in the sheet brass and copper manufacture desires to connect himself with an established works as superintendent; has had thorough experience in the detail and management of all the departments of rolled sheet brass manufactures; he has studied the economies and mechanical problems connected therewith, he can give the best of recommendations as to his qualifications. Address "MANAGEMENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as superintendent of wire nail and wire mill, rolling mill or tack factory; 25 years' experience in building, erecting and superintending above branches. Will guarantee unexceptional testimonials, and build the best machinery in the U. S. for entire outfit of above mills. At present superintendent of large mills. Address "SMITH," office of *The Iron Age*, 66 and 68 Duane St., New York.

AN IRON AND STEEL salesman with large experience and acquaintance in Middle and Western States will be open for engagement on January 1, with a mill as salesman, manager of branch or any position where hard, intelligent work will receive adequate reward. Address "E. W. A.," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as Secretary and Treasurer of an Iron and Steel Co.; have received a thorough technical education; have 10 years' practice in management of iron and steel works, and 10 years' experience of importing iron, handling considerable amounts of money and being thoroughly familiar with the market; can give the best references. Answer to "PIG IRON," Box 18, office of *The Iron Age*, 66 and 68 Duane St., New York.

AN EXPERT MECHANIC of large experience and of considerable private means, 40 years of age, familiar with designing and perfecting steam, electrical and hydraulic machinery, is open for engagement with inventors and builders of new or complicated machinery, in the Eastern or Middle States; electric machinery preferred. Address "TEMPLE," office of *The Iron Age*, 66 and 68 Duane st., N. Y.

HARDWARE.—A practical Lock and Hardware Manufacturer desires position as Superintendent or Manager; is capable of looking after all departments; would like to hear of responsible parties who are about to start a Lock or Hardware manufactory. Address "NEW BRITT," Box 400, office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MARRIED MAN who has had ten years' experience at bookkeeping, labor accounts, cost sheets of jobs, &c, in general machine shop, boiler shop and foundry business; thoroughly reliable and acquainted with the business, clerically, in all its details. Address "CLERICAL," office of *The Iron Age*, 66 and 68 Duane street, New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

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ENGINEERING KNOWLEDGE, ABILITY, broad experience in the foundry and machine business, and in manufacturing and construction, draughting, estimating costs and prices, correspondence, and a reliable, energetic nature, are the qualifications possessed by a thoroughly competent Mechanical Engineer, with experience and capacity to fill a responsible position. Address "EXECUTIVE QUALITIES," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

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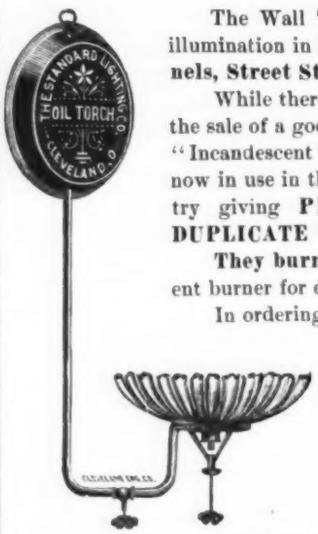
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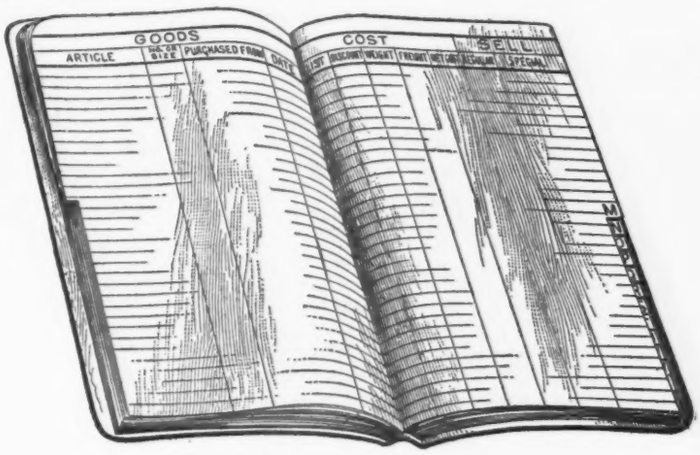
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Columns are provided for the name and number or size, for noting from whom purchased, date of quotation or purchase, list and discount, and for entering freight expenses as an element of cost. Under the heading of selling prices, the regular and any special price or remarks in regard to the goods are given place. This book goes into considerable detail in describing the goods and cost prices. It has been arranged in accordance with the views of many Hardwaremen whose methods are careful and exact.

Size, 4 x 7 in.; grain seal leather.

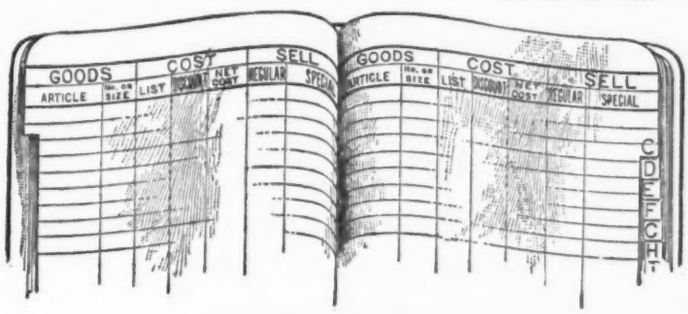
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Hardware Price Book A.

BOOK B.



Hardware Price Book B.

In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations sufficiently large for the convenient and concise record of prices.

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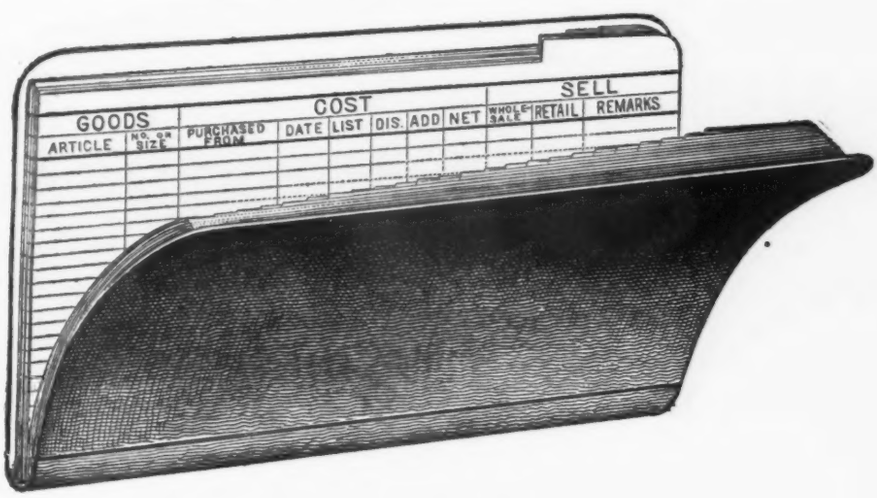
BOOK C.

The headings in book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price and also for any remarks in regard to cost of the goods, desirability of pushing them or other matters.

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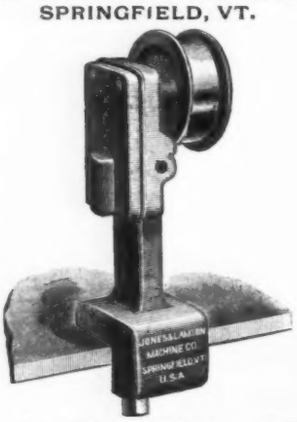


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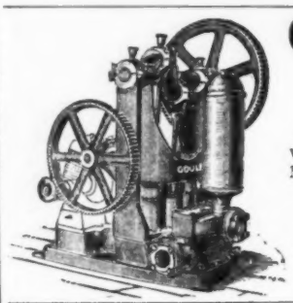
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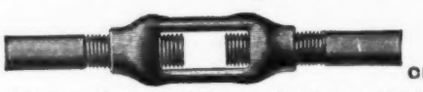
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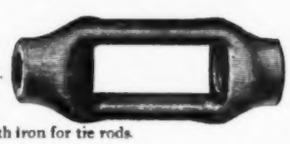
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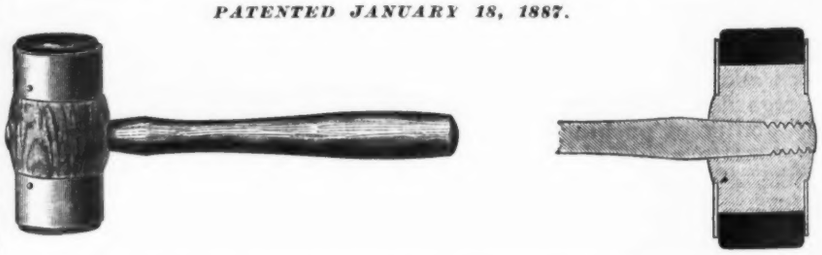


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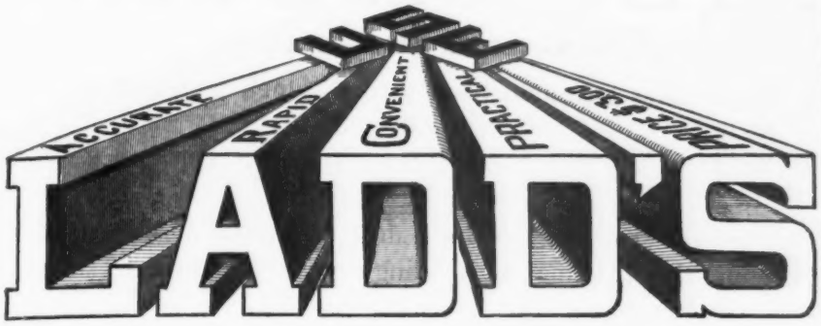


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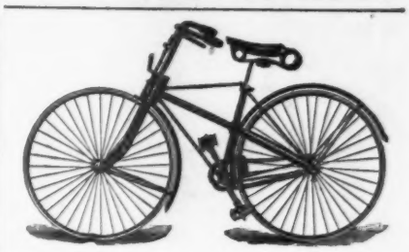
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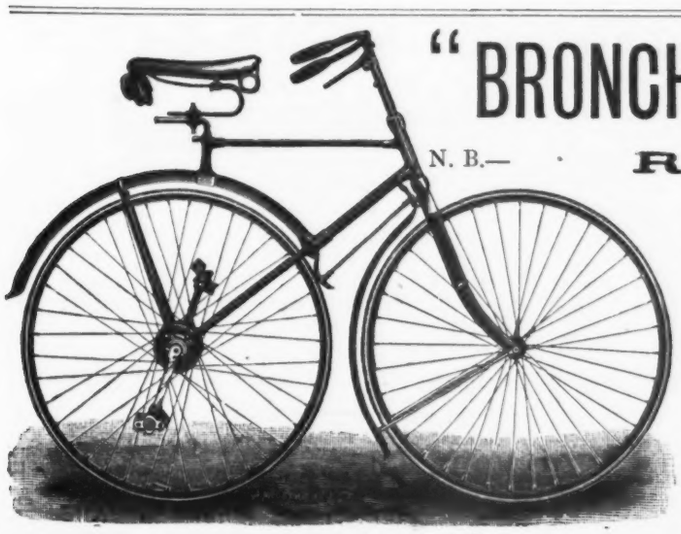
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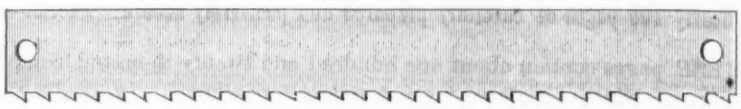
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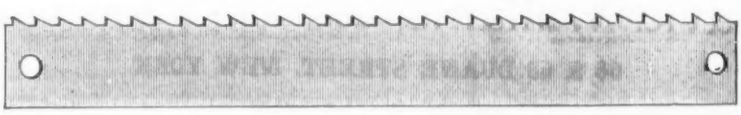
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Length.	Width.	Gauge.	Teeth to Inch.	Per Dozen
14 and 16 in.	½ in.	24	9½	$1.08
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22 " 24 "	¾ "	24	9½	1.32



THE STANDARD SCREW DRIVER.

Forged Steel Blades.



Mahogany Handles.

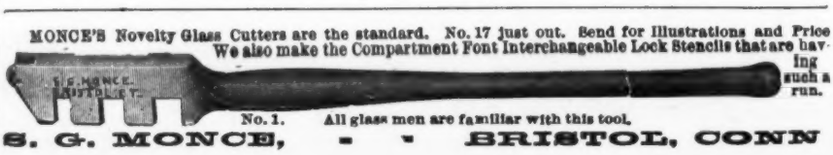
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The blades are warranted not to work loose. Every one thoroughly tested and carefully inspected. Made of the best steel, carefully tempered. They are finely finished. Write for prices.

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Half ton, one ton, and one-and-a-half ton sizes now ready.

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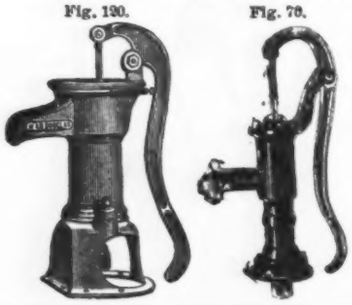
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A LARGE CAPACITY, AND EASY WORKING PUMP FOR

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Fig. 190. Fig. 76.



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The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

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These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for **IRON** Pipe Suction underneath.

Send for Circular and Price List.

Fig. 209. Fig. 381.



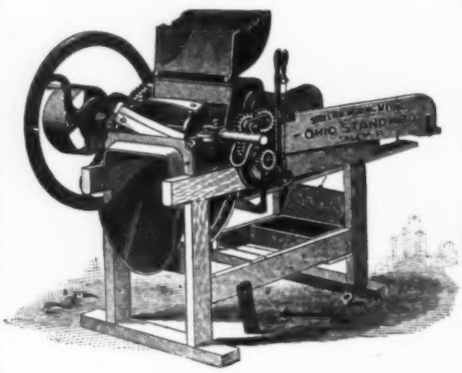
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The Ohio Ensilage and Fodder Cutter.

A complete line of machines, embracing ten sizes for hand and power. Carriers furnished with all power sizes when ordered.

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Hydraulic Rams,

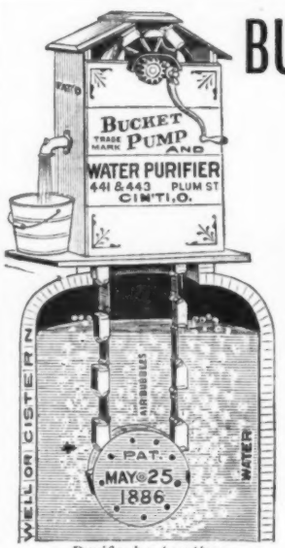
Boiler Feed Pumps, Garden Engines, &c.

Write for Catalogue and Prices.

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For Wells and Cisterns of any Depth.

Warranted to Purify a Foul Well or Cistern in Ten Days' Use or Money Refunded.

It will draw ten gallons of water per minute.
Never has to be packed, primed or thawed out.
A ten-year old boy can draw water with ease from a 40-ft. well.
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It is the simplest and most durable structure made for raising water.
It can be set up in 15 minutes, as there is nothing to fasten below the platform.
It will not freeze, having stood the test of a Dakota winter, 38 degrees below zero, as the buckets discharge themselves.
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Beware of infringers. No perfect working Pump can be made on this principle without infringing on our patents.

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New Champion Force Pump.

With vacuum and air chambers, brass cylinders and brass valve seats—continuous discharge—working parts readily accessible.

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Bears the Rogers Trade-Marks.



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We are the sole manufacturers of Silver Steel Saws, and enjoy the distinction of not only having first introduced the best Saws, among which are the Champion, Diamond and Dexter, but of improving and maintaining the quality of Saws to a degree which challenges comparison.

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ATKINS'

Cross-Cut, Circular, Band and Gang

SAWS

Are Everywhere Recognized as the

Standard of Excellence.

Western agency for Tanite Emery Wheel.



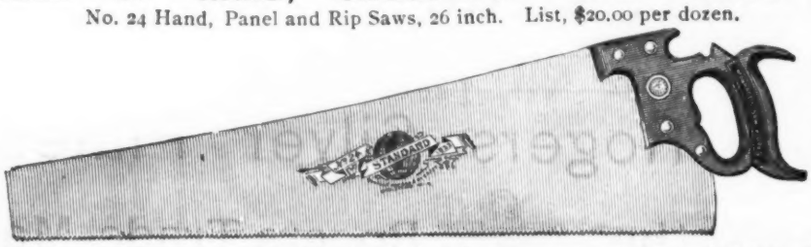
Ground Substantially uniform gauge on the toothed edge, and any gauge required on the back.

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Extra Thin Back.
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"If you want a Saw it is best to get one with a name on it which has a reputation.
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THE SAWS THAT LEAD THEM ALL

"THE SAW;" HOW TO CHOOSE IT, AND HOW TO KEEP IN ORDER, Sent Free on Receipt of Name and Post Office Address.

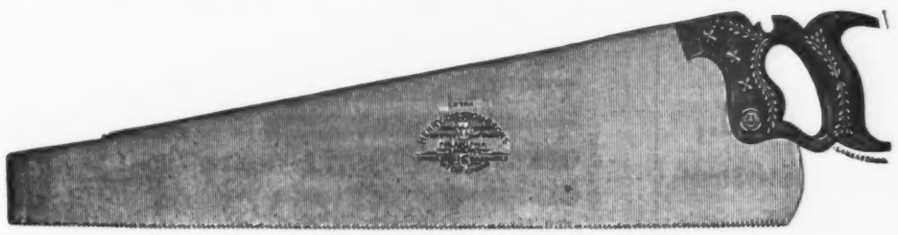
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This Saw combines all the valuable improvements in Hand-saws that have been made by us of late. The first and most important is the hollow or skew-back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

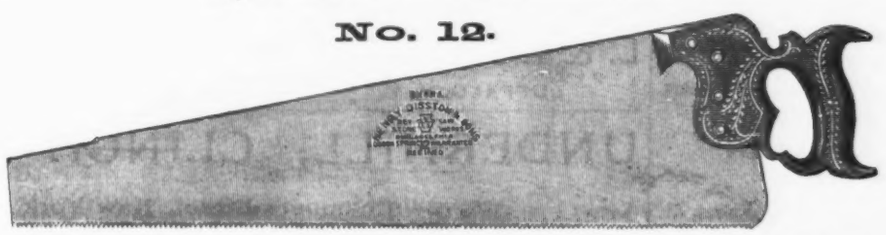
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AN EXTRA FINE SAW IN EVERY RESPECT.

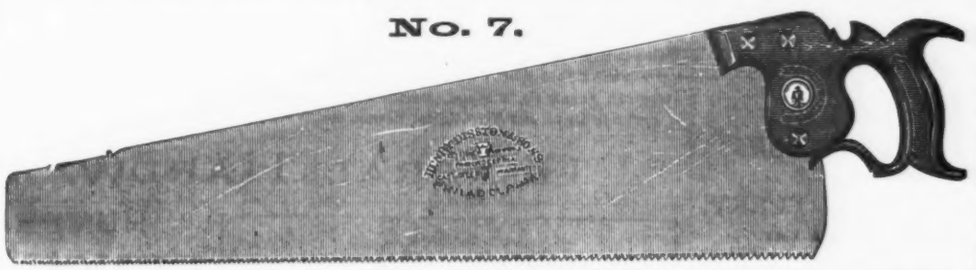
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TOOL CHESTS

Of all sizes complete with tools, for Hardware, Toy Notion and Variety trades.

Factory and Salesroom,

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Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application

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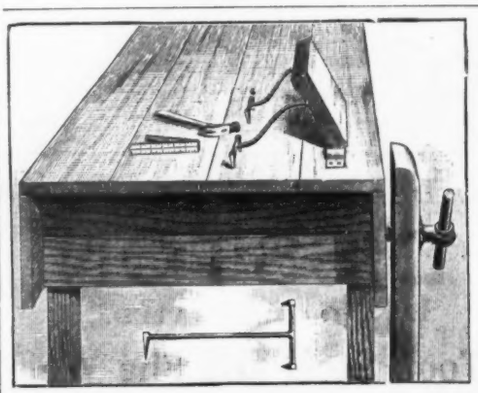
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They are made for head or foot use on the bench, as ordered.

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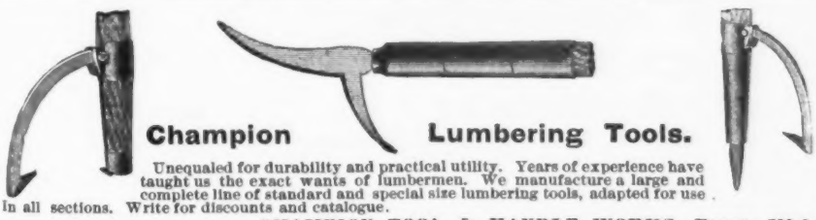
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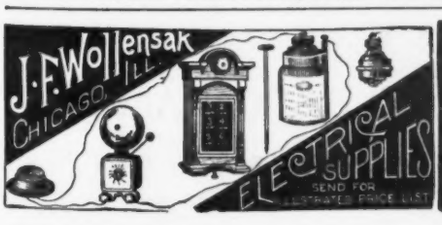
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Broom Knives,

BUTCHER STEELS,

BUTTER SPADES,

BUTTER and CHEESE KNIVES, &c., &c.

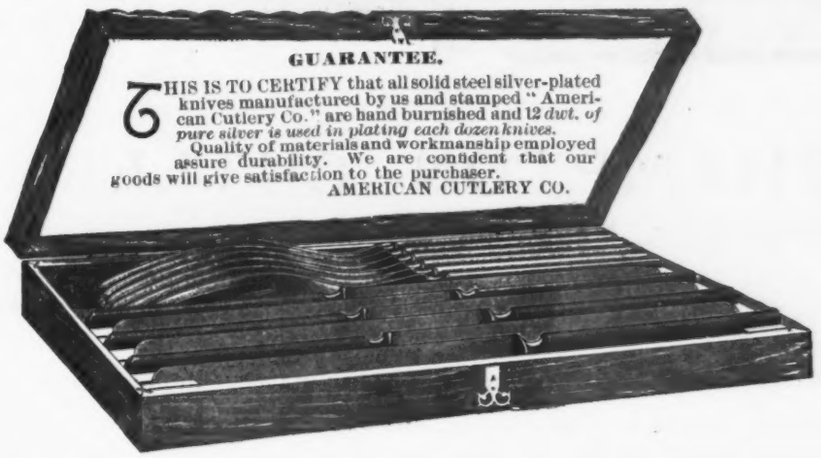
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ORDER A SAMPLE DOZEN.



AN ELEGANT HOLIDAY PRESENT.



The above illustrates one set of **PLATED KNIVES** and **FORKS**, ½ Doz. each, **PACKED IN FANCY CARVED HARDWOOD BOX. NO EXTRA CHARGE FOR BOX.**

These knives are made in one piece from finest crucible steel, well forged and evenly tempered by the latest improved process, and specially ground and polished for silver plating. Twelve (12 DWT.) pennyweight of pure silver is used in plating each dozen, and every part of each knife is hand burnished by experienced workmen, rendering plating hard and durable. Our sales of these Silver Plated Knives and Forks during the past year, and the growing demand for them, are assurances that their worth is known; a TRIAL will convince you that we have not overrated them.

Take advantage of our low prices and send us your orders early, on account of the

STEADILY INCREASING COST OF SILVER.

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Our line of extra fine Table Cutlery with Fancy Handles of PEARL, IVORY, EBONY, WALRUS, COCOBOLA, RUBBER, CELLULOID and BONE, are unexcelled. They are finished in the latest patterns, best workmanship and guaranteed extra quality steel.

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"Electric" Razors and Cutlery.



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FRENCH COOKS' KNIVES, 6 to 14 inch. Forks to match. Handles cannot come loose.

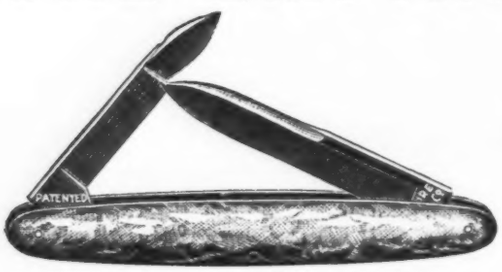
We warrant this knife superior in material and workmanship to any Cooks' Knives in the market, either home manufacture or imported. Our specialties are Butchers', Carvers and Cooks' Knives. Fine table plated goods.

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SOLE MANUFACTURERS OF



Empire - Pocket - Knives

And Empire Solid Steel Blade Shears and Scissors.

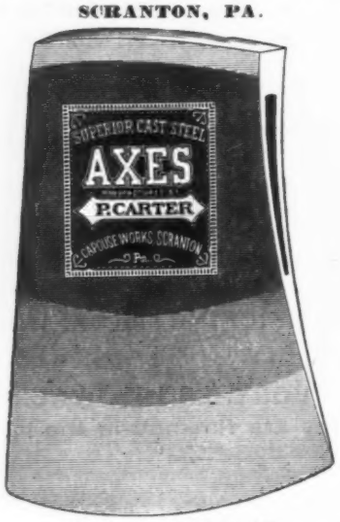
We manufacture also a complete line of forged steel Corkscrews and make a specialty of making Special Screws for parties owning patents.

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Established 1841.

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MANUFACTURERS OF

MINING TOOLS

AND ALL PATTERNS OF

CHOPPING AXES.

Send for Prices.

FRAY'S RATCHET BRACE.

Patented Dec. 25, '88, and Jan. 8, '89.

Price lists and catalogues on application.

Nickel-Plated, with Cocobolo Handle, Lignum Vitae Head.

No. 81— 8-in. sweep, $33 per doz
No. 101—10-in. sweep, 36 "
No. 121—12-in. sweep, 39 "
No. 141—14-in. sweep, 42 "

Plain finished, with Black Enameled Head.

No. 82— 8-in. sweep, $17 per doz
No. 102—10-in. sweep, 18 "
No. 122—12-in. sweep, 20
No. 142—14-in. sweep, 22



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MANUFACTURERS OF

Ship Augers, Auger Bits, Boring Machines and Boring Implements.

ESTABLISHED 1790.

FIRST PREMIUM AWARDS: Mass., 1841, 1848, 1850; International Ex., Paris 1878; Centennial Ex., Phila., 1876



Manufacturers of Car Bits, Jennings' Pattern Auger Bits, Boring Machine Augers, Carpenters' Augers, Mill Augers, Rafting Augers, Gimlets and Gimlet Bits, and Screw-driver Bits.

All Kinds of Machine Bits Made to Order.

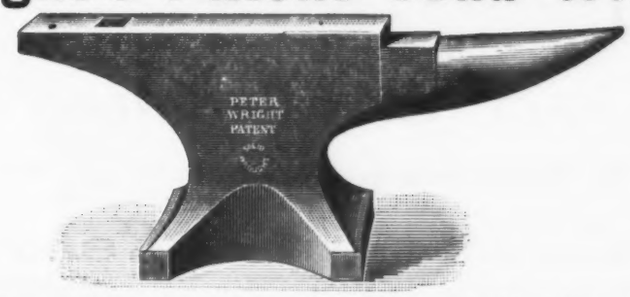
All Goods made of the Best Quality of Cast Steel and Warranted. First Premium Medals taken for Superior Quality and Excellence of Finish.

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Peter Wright's Patent Solid Wrought Anvil

PETER WRIGHT PATENT SOLID WROUGHT

Fac-Simile of Trade-Mark.



Fac-Simile of Green Label.

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PETER WRIGHT'S
SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE BICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

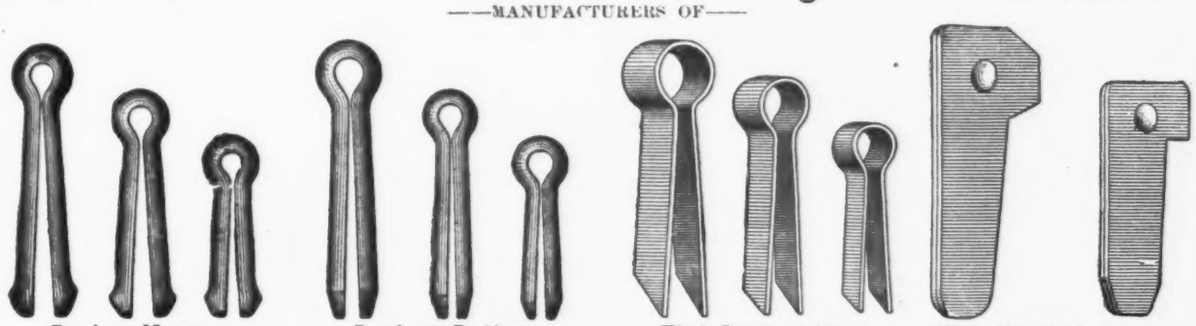
☞ *These celebrated Anvils may be obtained from all the principal Hardware Dealers.*

FACTORIES AT
AKRON, - OHIO.
CANTON, - OHIO.

The Whitman & Barnes Mfg. Co.

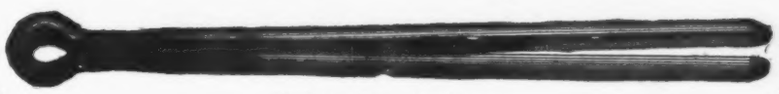
FACTORIES AT
SYRACUSE, - N. Y.
ST. CATHARINES, ONT.

——MANUFACTURERS OF——



Spring Keys. Spring Cotters. Flat Spring Keys. Flat Riveted Keys.

BRANCHES AT
79, 85 W. Monroe Street, CHICAGO, ILL.
1324 West 11th Street, KANSAS CITY, MO.
126 Main Street, CINCINNATI, OHIO.



Cellar Box Cotters.

BRANCHES AT
32 So. Market Street, BOSTON, MASS.
1917 Market Street, PHILADELPHIA, PA.

THE SYRACUSE TWIST DRILL BIT. (For Wood.)

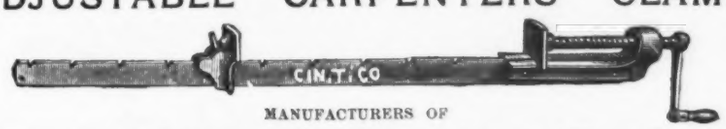


This tool is designed to meet the needs of CARRIAGE and CABINET MAKERS. It is also specially adapted to REPAIR WORK, and is THE BEST FARMERS' BIT in the market.

1. It is made of the BEST STEEL.
2. It is ACCURATE IN SIZE.
3. It can be FURNISHED BY 64ths of an inch if desired.
4. It can be SHARPENED ON A GRINDSTONE.
5. It WILL NOT SPLIT THE WOOD.
6. It will CUT OFF NAILS.
7. It will make a STRAIGHT HOLE.
8. It will REAM OUT A HOLE.

MANUFACTURED BY
SYRACUSE TWIST DRILL CO., Syracuse, N. Y.
Western Agent: H. H. and C. L. MUNGER, Chicago, Ill.

ADJUSTABLE CARPENTERS' CLAMP.



MANUFACTURERS OF

Bench Stops, Standard Clamps, Adjustable Clamps, Carpenters' Clamps, Band Setters. Adjustable Hollow Augers, Twist Drill Bits for metal, Twist Drill Bits for wood.

THE CINCINNATI TOOL CO., Cincinnati, Ohio, U. S. A.

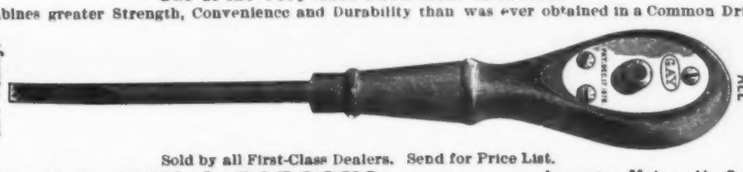
THIS IS THE "OLD RELIABLE" DOUBLE ACTION

RATCHET SCREW DRIVER

One of the Very Best Tools Ever Invented.

It Combines greater Strength, Convenience and Durability than was ever obtained in a Common Driver

Gives Perfect Satisfaction. Sells Readily.



LEADS THEM ALL

Sold by all First-Class Dealers. Send for Price List.

Manufactured by **CAY & PARSONS,** - Augusta, Maine, U. S. A.
JOHN H. GRAHAM & Co., Agents, 113 Chambers Street, New York.

Star Brand

—AND—

J.L. Trade-Mark.

DIAMOND BRAND

L TRADE MARK.

Reversible, Ball-Bearing and other Improved

CLIPPERS

For Horsemen and Barbers **27** Patterns. Latest improvements. Finest Quality.

Jesse Lee & Sons,

Sole agents for manufacturers and patentees,

37 South Fourth St, - PHILADELPHIA.

The Eclipse Spiral Screw Driver

THE BEST MADE.

Pacific Coast Trade supplied by

S. P. & W. H. SMITH
109 California St., San Francisco, Cal.

C. E. JENNINGS & CO.,

——MANUFACTURERS OF——

Mechanics' Tools and Hardware Specialties.

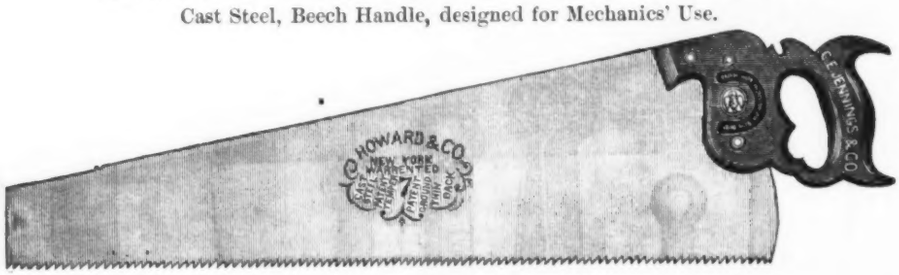
79 and 81 Reade and 97 Chambers Streets, New York.

OUR TOPIC FOR THE MONTH OF NOVEMBER IS SAWS.

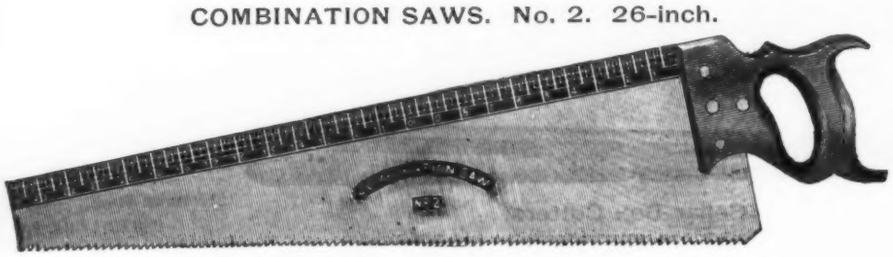
Having purchased the entire plant of the Port Jervis Saw Works, including the Real Estate, Machinery and Tools, we are now prepared to execute orders on a full line of Hand, Panel, Compass, Keyhole, Kitchen and Butcher Saws. We also carry in stock a full line of Buck Saws. We have our Saw Catalogue in preparation, and hope to have a full stock of our finest grade work ready for delivery by December 1st. We have on hand, finished, ready for *immediate* shipment, 1500 dozen Buck Saws, packed in cases of one-half dozen. This includes clock spring blades and polished blades, complete with patent frames. We can also furnish *promptly* Butcher Saws of all patterns.

HOWARD'S HAND, PANEL AND RIP SAWS. No. 70.

Cast Steel, Beech Handle, designed for Mechanics' Use.

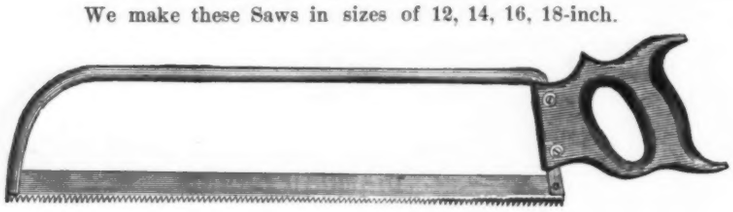


COMBINATION SAWS. No. 2. 26-inch.

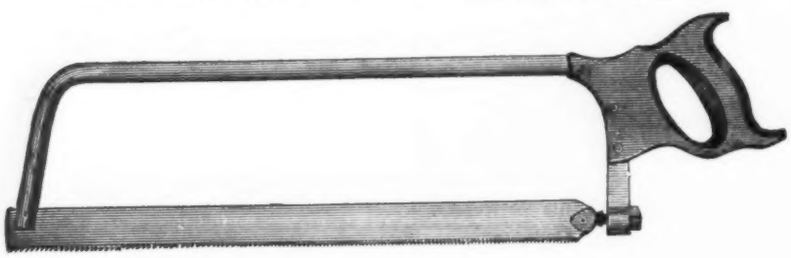


MEAT SAWS FOR KITCHEN USE.

We make these Saws in sizes of 12, 14, 16, 18-inch.



BUTCHER SAW. No. 3. All sizes, from 16 to 24 inches.



GRIFFIN'S PATENT HACK SAW. No. 30.

For Sawing Brass, Iron, Steel, Lead Pipe and Metals of all kinds.

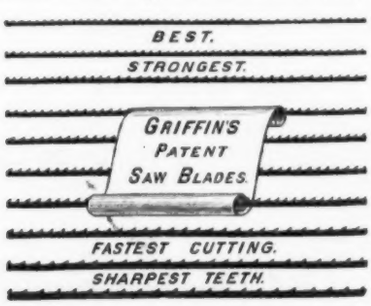


CLARK'S PRUNING SAWS. No. 85.

All sizes, 14, 16, 18, 20-inch.



These celebrated Scroll and Hack Saws are for sale by Hardware dealers not only in the United States, but also in all the larger cities of Europe, South America, Australia and Mexico.



We have had these Saws on the market for a long time, and they are well known to the trade.

PIKE'S



THE World's Headquarters FOR



BLUE-STONE, SCYTHE-STONE,



WHETSTONES, OIL-STONES, RAZOR HONES,



AND EVERY THING FOR

SHARPENING

EDGE-TOOLS.

If you **want the best Scythe-stones** buy the following celebrated brands:—The **"Indian Pond Red Ends,"** which have been made for about 70 years, and the sale of them extends to-day all over the world, and the demand for this stone exceeds all others. They are quick cutting, strong and do not glaze. The **"Lamoille Scythe-stone"** is also well-known, and has the reputation of being the best stone in the world to give a keen, smooth edge. The **"Black Diamond Scythe-stone"** is of the same grit, but superior finish, and is the handsomest scythe-stone in the market. The **"Ragg," "Willoughby Lake." "Green Mountain," "Diamond Grit," "White Mountain," "Farmer's Choice,"** and **"Extra Quinnebaug"** are all choice stone, coming from the best quarries which have been discovered in long years of effort and experience. These stones are carefully selected and handsomely packed and are sure to sell with satisfaction and profit.

THE "EASY" BOLT CLIPPER.



MANUFACTURED BY
H. K. PORTER,
66 & 68 Beverly St., Boston.

For Sale by the Trade Generally.

Send for Circular No. 20.



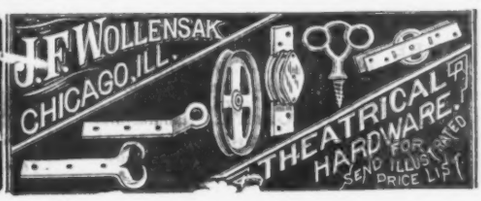
P. J. CONROY & CO.
Paschall, Philadelphia.

—THE—
"Conroy" Refrigerator Door Fasteners.

LIGHT BRASS CASTINGS

Pat. Dec. 15, '85. MADE TO ORDER.







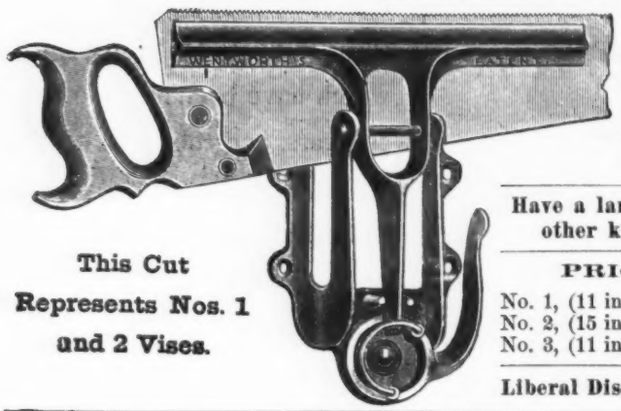
Amidon's Corner Brace.

Globe Jaw and 2nd Improved Barber. Twelve best style Braces in the world. Send for catalogue.

C. H. AMIDON.
BUFFALO, N.Y.

Wentworth's Patent Noiseless Saw Vises,

WITH RUBBER CUSHIONED JAWS,



This Cut Represents Nos. 1 and 2 Vises.

Prevent all vibration and render Saw Filing Noiseless.

Will make no more noise than filing on a solid piece of Iron.

Have a larger sale than all other kinds combined.

PRICE LIST.

	PER DOZ.
No. 1, (11 inch Jaws), -	$15.00
No. 2, (15 inch Jaws), -	21.00
No. 3, (11 inch Jaws), -	18.00

Liberal Discount to the Trade.



No. 3 Vise.

LONGEST JAWS, HEAVIEST AND BEST FINISHED.

Sold by all the Leading Jobbers of General Hardware at Factory Prices.

MANUFACTURED BY

SENECA FALLS MFG. CO., 255 Water St., Seneca Falls, N. Y.

The NEW PATENT CAN for LE PAGE'S GLUE

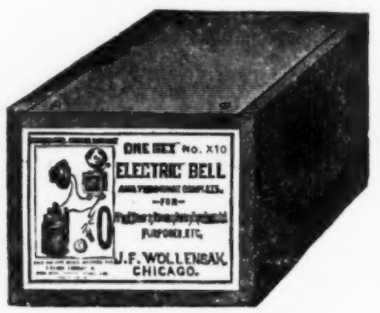
EVERYBODY APPRECIATES IT.

NO MORE SWEARING ABOUT TOPS THAT WONT UNSCREW.

ALWAYS GET THE BEST

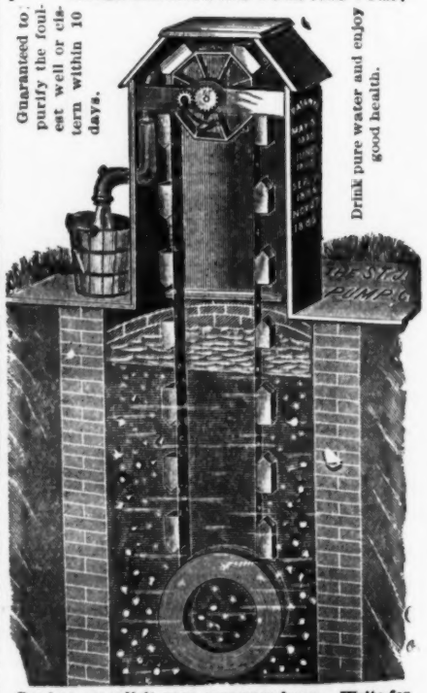


These patent cans are furnished only with *the Genuine* LE PAGE'S GLUE, manufactured by the **RUSSIA CEMENT COMPANY** Gloucester, Mass., U. S. A. New York Office, 95 Reade St. and 113, Chambers St.



THE CELEBRATED PERFECTION WATER-ELEVATOR AND PURIFYING PUMP.

Guaranteed to purify the foulest well or cistern within 10 days.



Drink pure water and enjoy good health.

Dealers, we solicit your correspondence. Write for our circulars and price list. Address **THE ST. JOSEPH PUMP CO.**, St. Joseph, Mo. U. S. A.

FIRE HOSE

FIRE DEPARTMENT SUPPLIES

Fire Axes, Fire Buckets,

Rubber, Leather, Cotton and Linen Hose

JOHN H. CLAY, Manufacturer,

1320 Ridge Avenue, Philadelphia.

Mills and Cities Fitted up with Fire Service.

Cronk's Patent Wire Cutter and Bender.

This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is specially adapted to farmers' use in building Wire Fence, &c.

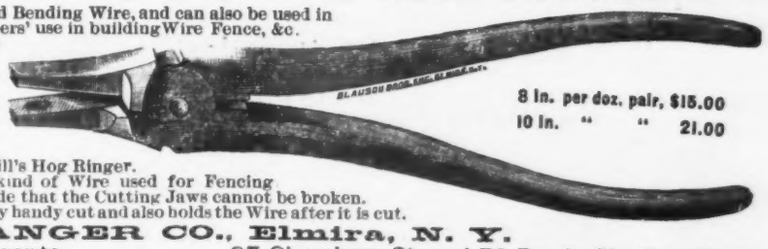
Our reasons for claiming that we have the best Pliers in the market are:

FIRST.—We use the best Tool Steel and they are nicely finished.

SECOND.—We combine both Flat and Round-Nosed Pliers in one, the concave and convex circles between the handles are used for bending wire in any desired shape.

THIRD.—The cupping in the Nose is used for pulling tacks, brads or nails, and can also be used in place of Hill's Hog Ringer.

FOURTH.—We can cut Barb Wire, Barb Belt or any kind of Wire used for Fencing purposes. We also claim that we have the only Plier made that the Cutting Jaws cannot be broken. By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.



8 in. per doz. pair, $15.00
10 in. " " 21.00

CRONK HANGER CO., Elmira, N. Y.

SURPLESS, DUNN & ALDER, General Agents. - - 97 Chambers St. and 79 Reade St., New York.



RELIABLE

Torches,
Furnaces,
Paint Burners.

TORCHES to burn Gasoline and Oil. **500,000 in use.** Not affected by wind or weather.

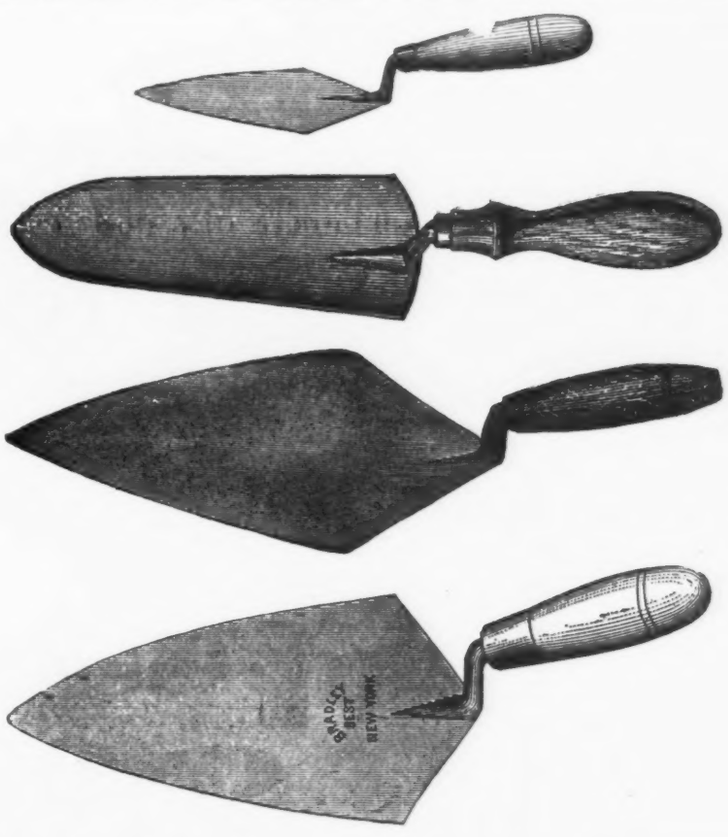
GASOLINE FURNACES for plumbers' and tinners' use. Powerful flame. Removable melting pot. Wind does not affect them.

GASOLINE PAINT BURNERS. Steel bodies. Light and strong. Adjustable burner. *All Goods Guaranteed.*

SOLE MAKERS

The Schneider & Trenkamp Co.

Cleveland, O.



Brick Pointing AND Garden Trowels

BRADLEY & PIERSON MFG. CO.,

NEWARK, N. J.

The NEWPORT HAIR CRIMPER

The simplest and best  Crimper yet produced.

MANUFACTURED FROM ALL STEEL BY

CHICAGO NICKEL WORKS, 125 and 127 Ontario St, Chicago, Ill.

Nickel Platers and manufacturers of Hardware Specialties. Send for Price List. Liberal Discount to the trade.

H. T. Wakeman,



SUCCESSOR TO

BROWNING, SISUM & CO.

85 Chambers St.,

NEW YORK.

Manufacture

Belt Hooks
Cotters,
Spring Keys,
D Rings,
Staples,

and everything pertaining to wire bending.





If you buy any other inside window blinds before examining the new illustrated catalogue of the

"Hartman Patent Inside Sliding Window Blinds"

you will miss it in *style, quality, durability, convenience and price.* Agents wanted.

ADDRESS

HARTMAN & DURSTINE,

No. 51 Larwill St., Wooster, Ohio.

NOT a member of any Trust or Combination. Price subject to change without notice.

Shot, - $1.60 per bag.
Ton Lots, 1.50 "

Less 5c a bag for cash on receipt of bill.

Globe Shot Works,

634 Pemberton Street,

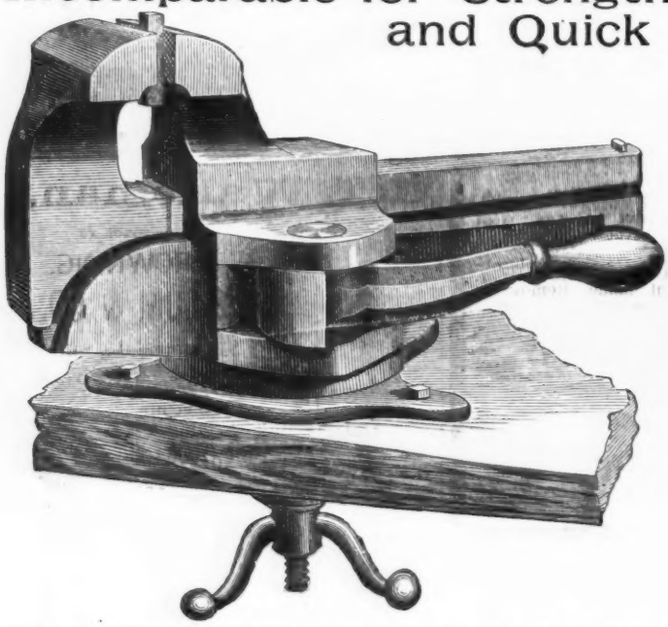
PHILADELPHIA, - - PA.

Nov. 5th, 1890.

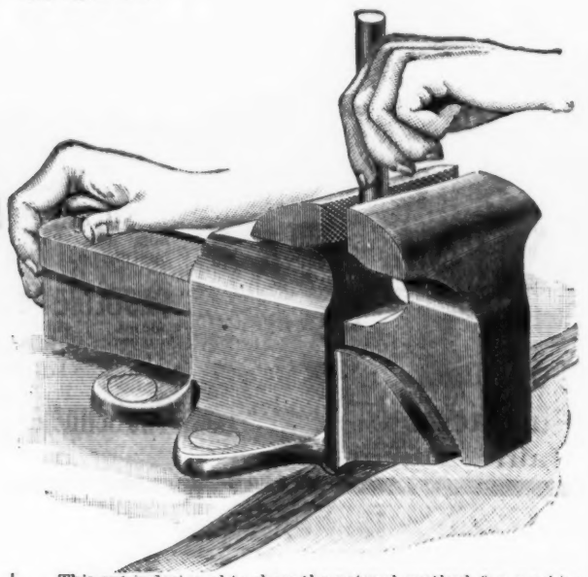
STEPHENS' PATENT VISES.

Quick Adjusting Cam and Toggle-Joint. Stationary or Patent Swivel Bases.

Incomparable for Strength, Durability, Firm-Hold and Quick Work.



Made both in FLAT and SWIVEL in 2 in., 2¾ in., 3½ in., 4½ in., 5½ in., 6½ in. width of Jaw.



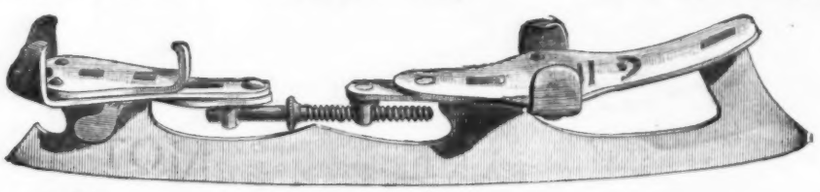
This cut is designed to show the natural method for working this vise and the EASE and FACILITY with which it is *opened* and *closed*.

ALSO TAPER JAWS, PIPE GRIPS AND OTHER ATTACHMENTS.

TOWER & LYON, Manufacturers, - - 95 Chambers St., New York.

UNION LOCK LEVER ICE SKATES.

An entirely new line. Superior Goods. Prices to meet Competition.

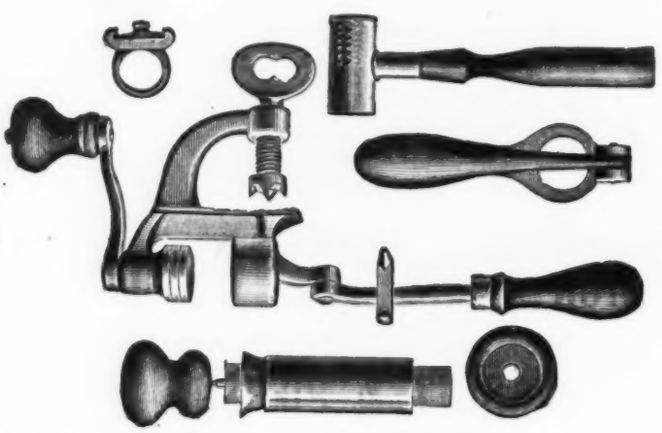


Dog Collars IN 600 STYLES, Many New, AND DOG Muzzles.



Gun Implements.

A complete line, best quality and finest finish.



NEW AND COMPLETE LINE PATENT OVAL EDGE TACKLE BLOCKS.

MANUFACTURED BY THE

UNION HARDWARE CO.,

Torrington, Conn.

NEW YORK OFFICE in charge of TOWER & LYON.

The Le Page Company's Improved Process Liquid Fish Glues.



Be sure the vignette and signature of WM. N. LE PAGE are on every package.

WM. N. LE PAGE is the original inventor of Preserved Liquid Fish Glue, and of the New and Improved Process by which this glue is manufactured, producing the finest, clearest and strongest glue in use.

Our new cans, with patent cap and fastening, have important advantages.

For the convenience of dealers in exhibiting and selling our Improved Process Glues, we have prepared WIRE STANDS of neat design, for use on the counters or in the show window. See illustrated price lists.

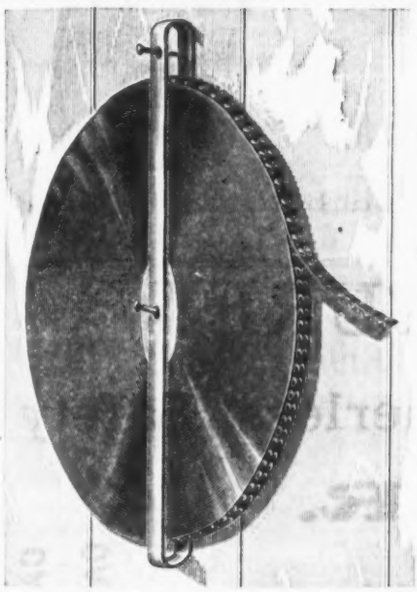


THE LE PAGE CO.,

50 Central Street, Boston.

New York Office: 95 Chambers St., in charge of TOWER & LYON.

CARY'S UNIVERSAL METAL STRAP.



Showing Reel Hung Up Ready for Use.

A SUBSTITUTE for STRAP IRON, Wood Straps, Wire and other material

Used for binding Packing Cases,

—ETC.—

A CONTINUOUS METAL STRAP

—PUT UP IN—

Coils of 300 Feet in Length,

AND PACKED IN

Cases Containing 20 Reels Each

Made in different Widths and Gauges.

Six U. S. Patents on Bands, Joints and Reels. Patented in the Principal Foreign Countries.

Manufactured by the CARY MANUFACTURING CO. 41 & 43 Centre St., N. Y.



STANDARD TOOL CO.,

Athol, Mass.

SEND FOR CATALOGUE.

COLBY VENTILATORS

MANUFACTURED BY

The Colby Hardware & Electric Co

37 CLARK ST., CHICAGO, ILL.

WRITE FOR PRICES AND CIRCULARS.

SPECIAL AGENTS WANTED IN EVERY TOWN.

STATE RIGHTS FOR SALE.



X, XX WHITE DIAMOND TRADE MARK. XXX

BUFFING COMPOSITIONS.

LABOR-SAVING, LASTING, ECONOMICAL.

A saving of 15 to 20% (if properly used) over any other compositions in the market.

☞Our XXX Coloring Composition (white) takes the place of rouge; costs less, weighs less and does cleaner and better work.☜

Send for samples and price list, stating about the quantity you use yearly for both cutting and coloring. Manufactured only by the

MATCHLESS METAL POLISH CO.,

82 and 88 So. Market St., Chicago, Ills.

Also sole manufacturers of the celebrated MATCHLESS METAL POLISH, BAKER'S TRIPOLINE and WHITE DIAMOND GLASS and SILVER POLISH



GENUINE FLAX Fiber-Ware

—IS—

SUPERIOR

to all other ware because it don't RUST, SOAK OR FALL TO PIECES, yet is LIGHT, STRONG, CLEANLY. Our plain goods are STAPLE and our No. 5 HAND-DECORATED, UNIQUE, ARTISTIC and

GREAT SELLERS!

Sell "STANDARD FIBER-WARE" and your customers will tell their neighbors where to buy these ELEGANT UTENSILS and that they are

THE BEST!

NONE GENUINE WITHOUT ABOVE TRADE-MARK ON BOTTOM. Orders filled promptly. Send for prices, etc.

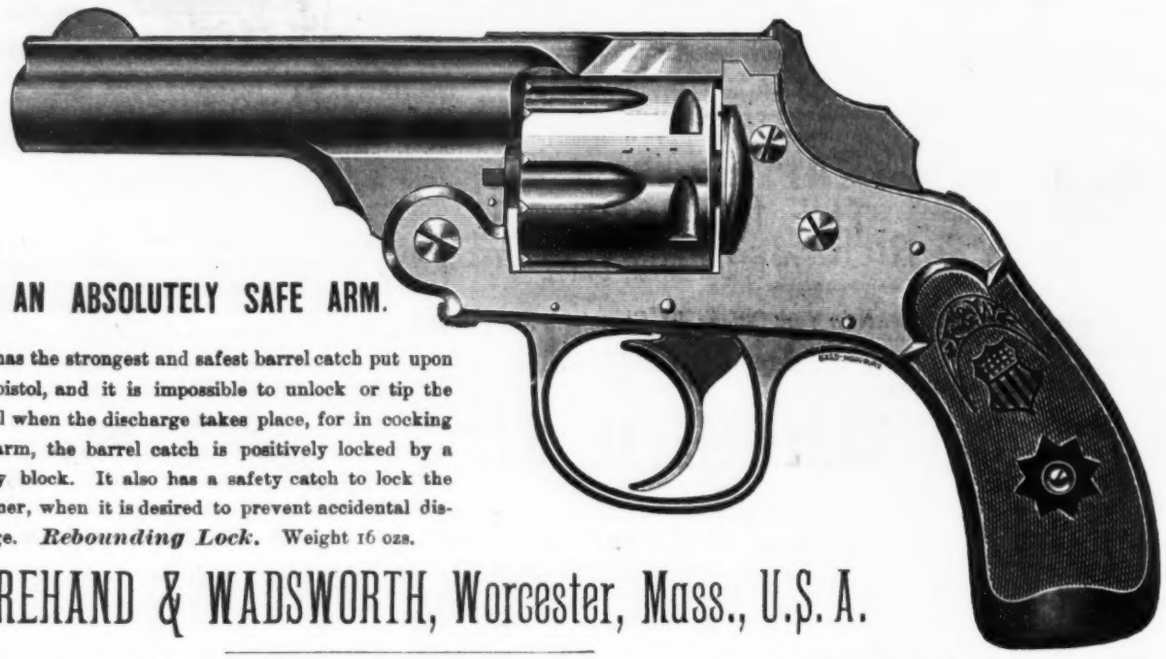
STANDARD FIBER-WARE CO.,
217 W. Elm Street, Mankato, Minn.

FOREHAND & WADSWORTH'S

New HAMMERLESS Revolver,

Automatic Shell Extracting,

32 and 38 Centre Fire S. & W. Cartridge.



AN ABSOLUTELY SAFE ARM.

It has the strongest and safest barrel catch put upon any pistol, and it is impossible to unlock or tip the barrel when the discharge takes place, for in cocking the arm, the barrel catch is positively locked by a safety block. It also has a safety catch to lock the hammer, when it is desired to prevent accidental discharge. ***Rebounding Lock.*** Weight 16 ozs.

FOREHAND & WADSWORTH, Worcester, Mass., U.S.A.

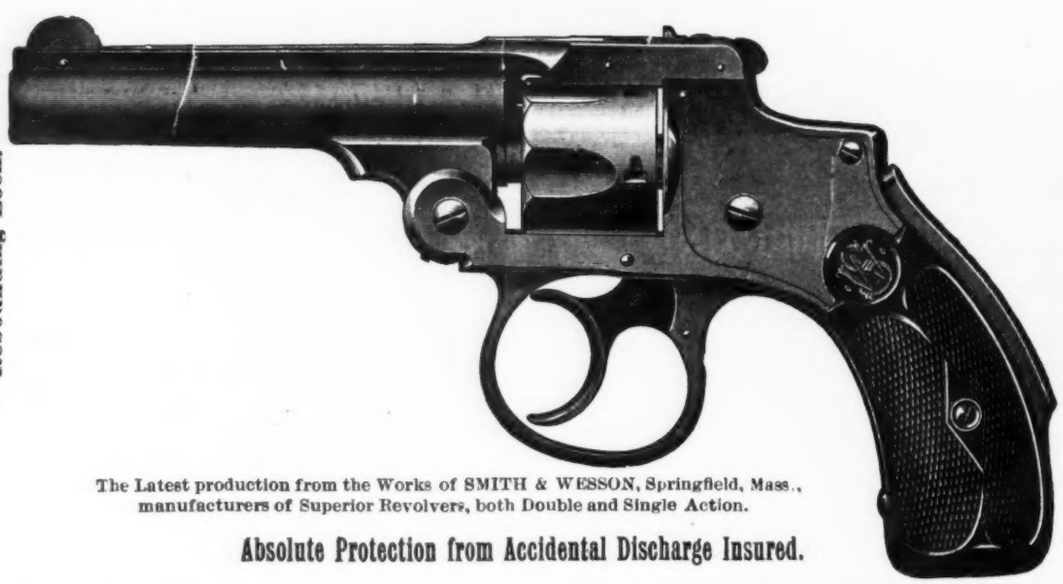
Sold by all Dealers in Arms generally throughout the United States.

A NEW DEPARTURE!

The Smith & Wesson Hammerless, Safety

REVOLVER.

Provided with Automatic Shell Extractor, Rebounding Lock.



CALIBRE 32, WEIGHT 14½ OZ.
—AND—
CALIBRE 38, WEIGHT 18½ OZ.,
NOW READY.

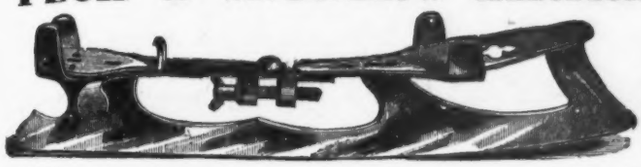
The Latest production from the Works of SMITH & WESSON, Springfield, Mass., manufacturers of Superior Revolvers, both Double and Single Action.

Absolute Protection from Accidental Discharge Insured.

SUPERIORITY IN EVERY POINT UNIVERSALLY CONCEDED.

SEND FOR DESCRIPTIVE CIRCULAR.

PECK & SNYDER'S American Club Skate Still Ahead.



	LIST.
No. O. Cast Steel Runners, Blued Clamps and Foot Rest	$2.00
No. OO. Cast Steel Runners, Full Nickel Plated	2.50
No. 1. Best Welded Runners, Blued Clamps and Foot Rest	3.00
No. 2. Best Welded Runners, all Full Nickel Plated	4.00
No. 4. Best Welded Runners, Full Polished and Nickel Plated	5.00

Great reduction to dealers. Send for price-list.

124-130 Nassau Street, - New York.



Pattern, Penetration, Velocity and Cleanliness are combined in

The Peters Cartridges

THE PETERS CARTRIDGE CO., CINCINNATI, OHIO.

MANUFACTURERS OF

The "Prize" Paper Shells,

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Improved Automatic Double Action,
3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

IMPROVED EJECTING DOUBLE ACTION,
3 1-4 in. Bbls., 32 & 38 Cal.

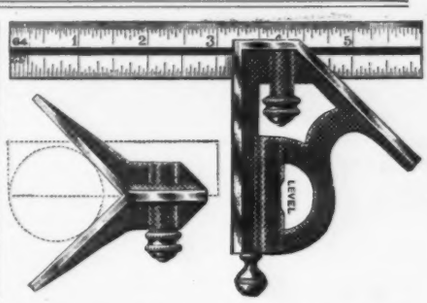
"Premier" Automatic Double Action Revolvers,
3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

This line is unsurpassed for Style, Finish and Convenience in Manipulation.

The Safety Hammer Double Action,—Patented April 5th, 1887,—**made in 3 Calibers, 32, 38 and 44. The American Double Action Revolver in 32, 38 and 44 Caliber,** with 2½, 4½ and 6 inch barrels.
The Young America Double Action Line, 22 and 32 Caliber, and
The Vest Pocket Self-Cocker, 32 Caliber, Altogether making the most desirable line of Double Action Fire-arms manufactured by any Company in the world.

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RAPID CORK PULLER.

(Pat. applied for.)

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SIMPLEST

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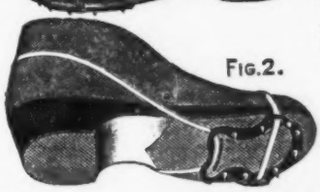
Will not break bottles. Cuts wires and pulls cork with one motion of the hand.

Durable and Compact.

A GOOD SELLER.

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ARCTIC ICE DOGS.

These Ice Dogs or Creepers, designed to secure safe-footing on slippery pavements, are the simplest and best ever invented. They consist of a very light, malleable casting of the best quality of iron, fitted for the sole of the shoe and fastened to the foot by means of a toe-strap and an endless elastic band drawn high over the heel, thus holding the dog to its place, and being easy of adjustment, is very quickly put on or taken off.

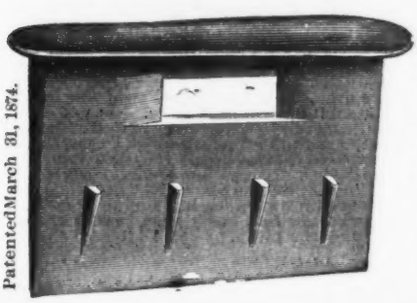
There are two sizes, for ladies and gentlemen respectively, and the peculiar adjustment attaches them equally well to boots, shoes or rubbers, without difficulty or delay.

Retail at **50c.** per pair. Liberal discount to dealers.

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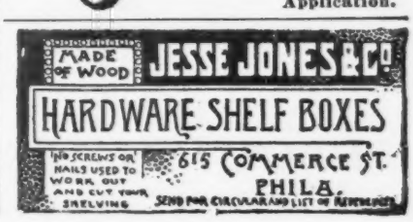
Patented March 30, 1874.

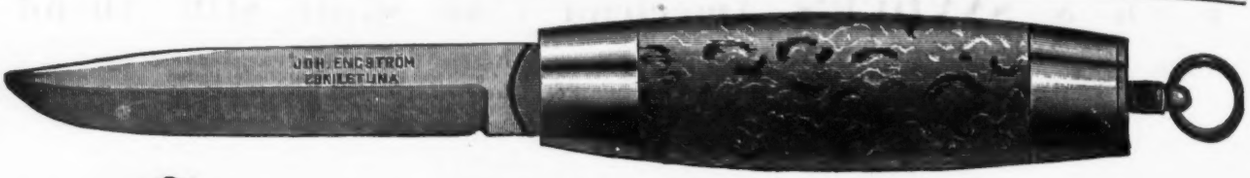
BEWARE.

Several styles of axe wedges have been put on the market the past year or two, all of which, so far as I know, are infringements of my patent. *All parties are hereby warned* against selling or using such wedges. One suit has been settled in my favor, another settled without suit, and other parties will be called to account soon. I still manufacture and sell the above, which has more practical merit than any other thus far made.

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MEDALS: Philadelphia, 1876; Eskilstuna, 1878; Paris, 1878 and 1881.

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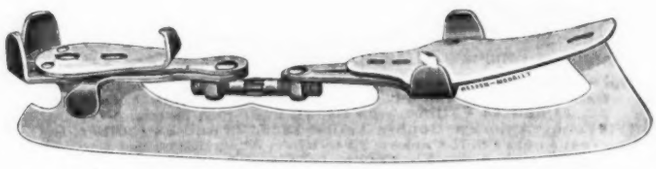
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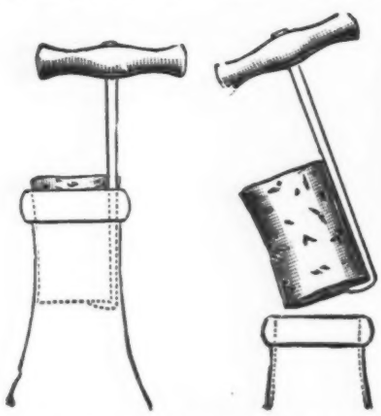


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Corkscrews No More.



No matter how great a pressure the stopper has been subjected to this Cork Puller will remove it unbroken with slight effort. Being constructed with an air passage it draws corks without creating a vacuum in neck of bottle.

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THE LATEST AND BEST.

All the Essential Features greatly perfected. Important Improvements. The Best Inventive Talent and Mechanical Skill have been employed to produce a machine of increased Durability, Excellence of Design and Special Features.

We claim an inspection and a trial will prove it the Most Durable in Alignment, Easiest Running and Most Silent.

All Type Cleaned in 10 Seconds without Soiling the hands.

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The Leonard Patent Portable Storm Houses.

A long-felt Want Supplied. Comfort and Economy Assured.



The sides and roof are constructed of Corrugated Iron set in a frame of Michigan Pine. The front is a good five panel sash door set in a frame of 2 x 4 pine. The upper panel is set with glass. The whole is neatly painted—two coats and two colors. Has a good latch with porcelain knob, and door spring. It is **Ornamental, Light, Strong, Cheap and Durable.** Anybody can set it up or take it down. Not necessary to have a carpenter. Storm Doors can be taken away in case of removal. The sides of the house are hinged to the front and fold inwards. The gables are hinged to the roof and fold inwards. The whole structure is only six inches thick when folded. To set it up, hook the edges to the door frame and adjust the roof to the top of the door frame. A notch may be sawed in the bottom rail for a projecting step or threshold if necessary. They save their cost in fuel every year, besides the comfort they give. Exclusive agencies given.

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Every box contains twelve rolls of 25 yards or 25 feet each.

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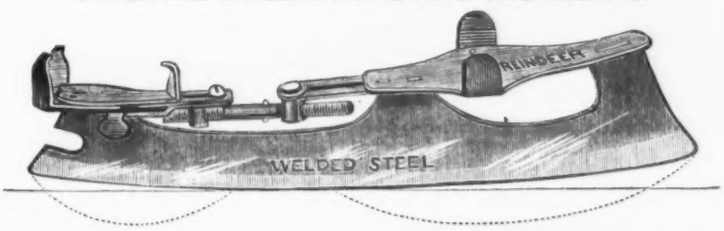
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Lawn Sprinkler.

Cheapest and Best in Use.

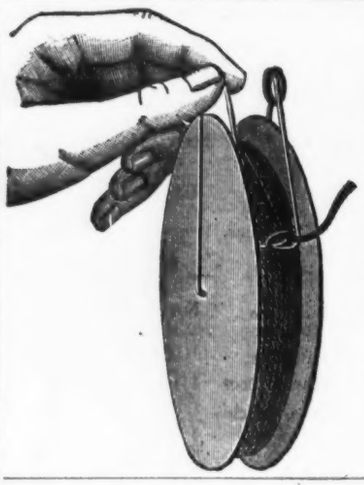
The Spray from it covers upwards of 1000 *sq. feet of lawn.* It is the only patent adjustable Sprinkler which is adaptable to any water pressure. Being made of brass, and having no revolving parts to wear out, or small openings to clog up, it can be operated with sandy or muddy water as well as clear, and will last for years. To operate, screw Sprinkler on end of hose, stick the rod in to the ground in a vertical position, adjust the acorn to suit pressure and spray wanted and it is ready for use. It may be so regulated as to throw a spray *as coarse as rain or as fine as mist*, and will make one of the most beautiful fountains imaginable. It is unequaled in merit, requires no attention and is sold at a less price than any sprinkler in the market. Remember, the RIVAL is the only Sprinkler made by which the coarseness of the spray and the area to be wet can be regulated. They are packed 1 doz. in a box and finished either plain or nickel plated.

FULL SIZE.

¼ Inch Regular Hydrant Thread, (or Pipe Thread to order) per doz $7.50
1 Inch cm. Hose, Gas Pipe Thread, " " 12.00
Sample Sprinkler sent prepaid on receipt of 60 cents

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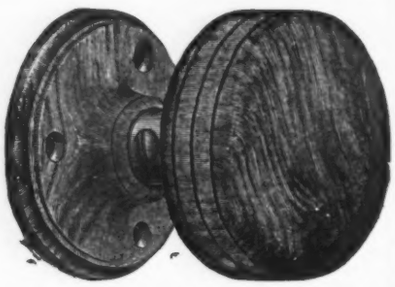
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Patent Wood Door Knobs,

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CHECKING SPRING HINGES

for double-acting doors.

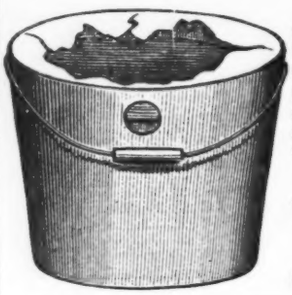
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"NO!!"

THAT'S WHAT SHE SAID TO HIM.

"I do not want one of those double bladed chopping knives. You cannot wash, scour or sharpen them without cutting the fingers."

"BUT,"

Said the Clerk,



"This is one of the new

BUFFALO ADJUSTABLE DOUBLE MINCING KNIVES

Which opens for cleaning and sharpening



Like This - - -

"Why, that's splendid. I'll take that!" said she.

"Better order some more of these, Mr. Smith, they are almost all gone again," said the clerk to the proprietor. "They are made by SIDNEY SHEPARD & CO., Buffalo, and C. SIDNEY SHEPARD & CO., Chicago."

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Enterprise Meat Choppers

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TEN SIZES, $2.00 TO $200.00.

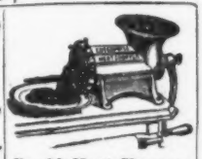


No. 41 Meat Chopper.

OUR POWER CHOPPERS

Do Not Heat the Meat.
Do Not Discolor the Meat.
Are Almost Noiseless.
Ice Can be Worked Through Them.
THEY SAVE POWER.
Do the Work Rapidly.
Do Not Grind the Meat.
Can Be Used as Mixers.
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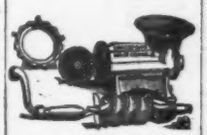


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No. 10, Large Family Size, $3.00.

They are unexcelled for chopping



Showing Machine Taken Apart.

Our Family Size Meat Chopper No. 10 has recently been improved in an essential feature. A drop forged steel plate (standard size, 5-32 inch holes) has lately been substituted for the ordinary cast plate, thus making the chopper capable of cutting 50% FASTER, FINER and EASIER than heretofore.



No. 41 Meat Chopper.



No. 52 Meat Chopper.

OUR FAMILY SIZE MEAT CHOPPERS are SOLD BY ALL HARDWARE AND HOUSE FURNISHING STORES.



No. 52 Meat Chopper.

Sausage Meat, Mince Meat, Hamburg Steak for Dyspeptics, Hash, Tripe, Hog's-Head Cheese Suet, Clams, Chicken Croquettes, Chicken Salad, Scrap Meat for Poultry, Cod Fish, Peppers, Corn for Fritters, Scrapple, Cocoanut, Stale Bread for Bread Crumbs, &c. Also for making Beef Tea for Invalids, Mashing Potatoes, Pulverizing Crackers, &c., &c., &c.



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Patent Double Lip Countersink.

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Calipers AND Dividers,



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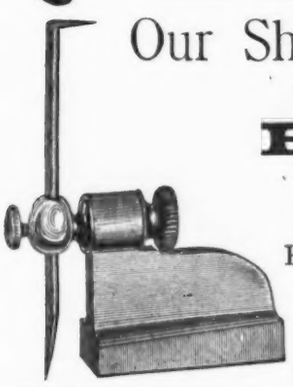
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Is the Favorite

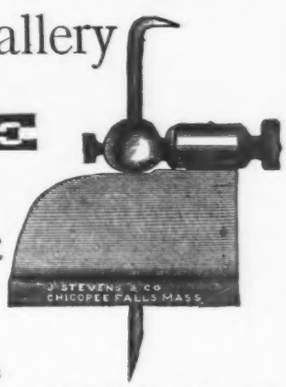
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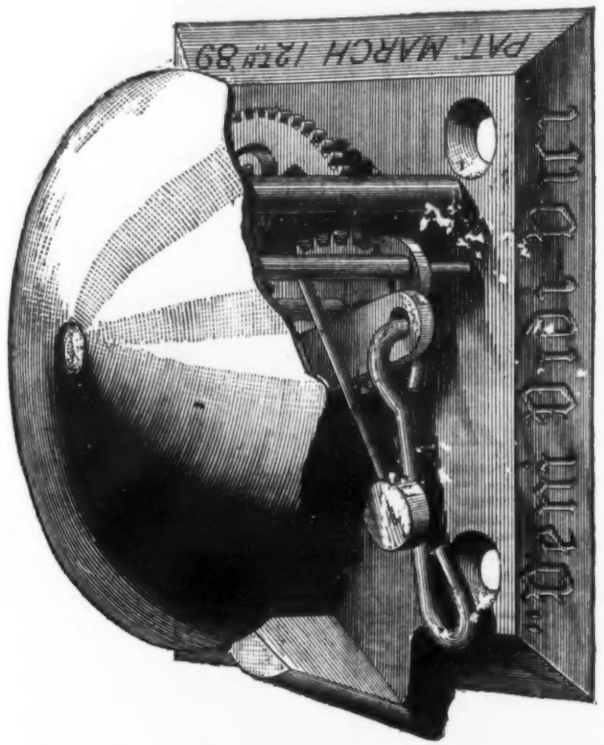
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ELECTRICITY OUTWITTED BY THE "EUREKA" AND "VENI VIDI VICI" DOOR BELLS.



Busby's Latest and New Improved Push Button Bell.

The Cheapest, Handsomest and most Thorough Made Bell on the Market.

Nos. 10 and 11.

They have *negative movements*, that is, are required to be *wound up*. There is *no defacing them when winding them*, as the *only part* that is *touched* is the *arbor key* on *end of winding arbor*. They have *merits never before brought forth in a mechanical push button bell*, viz. : *Full power* is given over *all "lost motion"* or *"back slack"* by an adjustable push rod. All *master craftsmen* will appreciate this, as they are aware *lost motion* will occur unless there is a way to *obviate it*. There is *no dropping out of push rod or losing push button* when the bell hanger or carpenter is *putting them up*, as *each is secured by a thread cut at each end of push rod*. There are *no spiral springs* about them, no *twisting off thread* on *end of arbor* or breaking of *springs*. They have *no wire "pinion" geers to come apart*. All our *"pinion" geers* are *solid steel*. There is *no straightening* of *Push Rods*, saving *valuable time* to *Carpenter* and *Bell Hanger*.

Our Nos. **1, 2, 10** and **11 Bells** are **Negative Bells**, *i. e.*, they **have to be wound up.** They **can be used on the door,** on the **side** of **the casing** of **the door, over the door** or **in the distance,** but we **advise** the **public not to be deceived** in the **use of a Negative Bell** for **heigth** or **distance,** *i. e.*, a **bell** that **that has to be wound up,** for our experience of many years (as we are no juveniles) in the bell business has **taught us** that a **bell** that **winds up** is **only fit for local use,** for if **put out** of **reach** and **stools** or **step-ladders are used** in **order** to **get at them** to **wind them up** when **run down,** and **they are apt to be so when most needed, they become a nuisance rather than a comfort or pleasure.** The **only bells** of **our make we would recommend** for **distance** are **our perpetual or positive movement bells,** which are Nos **5, 6 and 8.** These **never require any attention after once properly hung** and **can be used any distance.** There is **no winding to them.** They are the only reliable positive movement spring bells on the market; they have no double back action or spiral springs about them and never miss an alarm.

We believe in **dealing** in **facts with the trade** rather than putting **trash goods** on the **market** and **impose on the public** for the **sole purpose** of **gain** rather than **presenting merits** and **first-class goods.**

Our **aim** will **always be** to **give the best that skilled craftsmen can bring forth.**

Before getting **LOADED** with **Table Bells** wait until you have seen the **latest** and **best,** one **that gives** the **"electric" sound** and **does not have to be wound up.** There is **no tarnishing them** or the **nuisance** of **having** to **wind them,** as they are **positive** or **perpetual motion bells.**

Our U. S. Patents date Nov. 2, '86, April 12, '87, March 12, '89. Trade-Mark granted Oct. 19, '86. Foreign Patents Sep. 21, '86, Dec. 6, '86. July 18, '87. All of our Patents are of our own brains and Production not BOUGHT ONES or WARMED OVER "CHESTNUTS."

Western Depot:

HIBBARD, SPENCER, BARTLETT & CO.

CHICAGO, ILL.

"WHAT ARE THEY?"

They are door or Call Bells that give the same result as the Electric Bells without the use of a battery, magnet or air, avoiding all filling freezing or breaking of jars.

"HOW IS IT ACCOMPLISHED?"

Simply by a mechanical device the nearest to *perpetual motion* that has ever been found to be *practical*.

"ARE THEY DURABLE?"

They will outwear all other bells on the market, owing to their construction; they are *simple, solid, practical* and made of the *best material* and in the *best workman-like manner*. We make *no "trash goods."* They are the work of *master craftsmen*. *All our goods are warranted. Any imperfection will be made good at our expense.*

"WHAT IS THEIR COMMERCIAL VALUE?"

They cost no more than any first-class bell, and when once placed in position *that ends all expense, care or trouble*, and are not affected by heat, cold, dust or moisture.

"CAN THEY BE PUT UP ANYWHERE?"

Yes, and in any position or place, and will work with *any pull or lever. Old door pulls or levers work as well as new ones.* Old trimmings can be used without making any extra expense or defacing your doors or house in any manner. They are made in sizes from 2¼ inches and upwards to meet all demands of the trade. *They are the handsomest bells on the market.*

To comply with the wants of the trade we classify our bells as follows:

No. 1 Bell has a *negative movement* and *has to be wound up*. It has a brass bell and japan base, and can be used on the door or over it the same as No. 3 and 4 Bells are used.

No. 2 Bell has a *negative movement* same as No. 1, except it has a nickel bell and base. Used the same as No. 3 and 4.

Nos. 3 and 4 Bells are positive or perpetual movements and require no attention after placed in position. They work on centre of door with any manufacturers' Levers, old or new, and over the door with any manufacturers' Pulls, old or new.

No. 5 Bell has a *positive movement* and is for a **long or short range, no limit to distance.** This bell is brass, with japan base.

No. 6 Bell has a *positive movement* like No. 5, except it has a nickel bell and base, long or short range.

No. 7 Bell has a *positive movment* finished only in nickel and used for *hospitals and sick rooms*.

No. 8 Bell has a *positive movement*, is six inch, finished in brass. This is used for elevators mines, toboggans, double-runner sleds, &c.

No. 9 Bell is a ten inch bell, used for fire alarm in hotels, or on fire apparatus of all kinds, cable or motor cars and school houses. Made only to order.

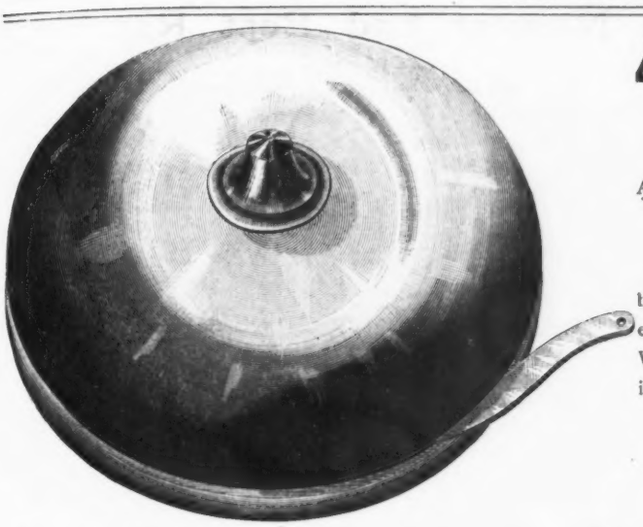
No. 10 is a *Push Bell*, japan base, brass bell and *negative movement—i. e.*, has to be wound up.

No 11 is a *Push Bell*, has a japan base, nickel bell, and a *negative movement—i. e., has to be wound up.*

No. 12 is a Bicycle Bell, finished only in nickel. The best Bicycle Bell ever put on the market. It has a *positive or perpetual movement.*

"EUREKA" DOOR BELL COMPANY,

86 BEVERLY ST., BOSTON, MASS.



4-INCH DISTANCE BELL.

Operated by a Push Button.

About **400** ordinary Electric Rings for each Winding,

Without the Aid of a Battery.

Can be placed in any part of the house. Easily adjusted by any one who will follow directions printed on the bottom of each box. Button Case, necessary Cranks and 75 feet of Brass Wire included, making each bell complete and nicely packed in suitable boxes.

No. 200, Nickel Gong, $40.00 per doz.

(Discount to the Trade.)

Our New Departure Call Bells,



Giving 250 electric rings with each winding. No battery required. Winding is easily and quickly done, by simply turning the gong. Depressing the button on top of the gong causes the bell to ring in the same manner as the electric.

No. 57, Silver Plated, $42.00 per doz.

Write for catalogue showing designs for holiday trade.

NEW DEPARTURE BELL CO.,

SOLE MANUFACTURERS,

BRISTOL, CONN.

JOHN H. GRAHAM CO., General Agents, 113 Chambers Street, New York.

WM. J. LLOYD MANUFACTURING CO., PHILADELPHIA, PA.

Great American Meat Cutters and Stuffer Attachments.



Patented Jan. 3, '83; Aug. 24, '86; July, 1890.

PATENT REVERSIBLE KNIFE.

Best in the Market.

No.	112,	with Clamp, will cut	2	lbs. per minute, each,		$2.00
"	116,	" " "	2	" " "		2.75
"	118,	" " "	3	" " "		3.00
"	120,		3	" " "		2.50
"	122,		4	" " "		4.00
"	124,	40-inch Fly-Wheel,	300	"	per hour, each,	25.00
"	126,	to screw to table,	200	" " "		8.00
"	128,	40-inch Fly-Wheel,	350	" " "		30.00
"	130,	Geared, ½ power,	250	" " "		20.00
"	132,	40-inch Fly-Wheel,	400	" " "		35.00
"	134,	Power,	750	" " "		35.00
"	136,	"	1000	" " "		50.00

Meat can be Cut and Stuffed in one operation.



The Stuffer Attachment fastens to the outside of the Plate, and gives entire satisfaction.

WRITE FOR CATALOGUE.



Pat. July 22, '90.

New Tumbler & Trigger Device

Not Shown in Cut.

The Newest and Best Rat Trap

—IS THE—

"Surprise!"

It is automatically set with the hands or foot—a feature possessed by no other Trap.

Simply Closing it Together "Does the Business."

The ingenuity, convenience and safety of the "Surprise" is one rason why it outsells all others.

Order a sample dozen from your jobber and "Surprise" your customers. The world is full of surprises.

MANUFACTURED BY

JNO. M. WADDEL MFG. CO.,

Coffee Mills, Specialties, &c., &c.

GREENFIELD, OHIO.





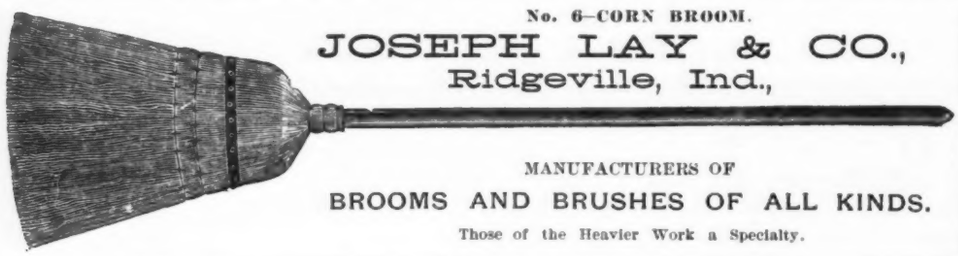
"IN THIS THE AGE"

of improvement the woman that sticks to the antiquated device shown in the engraving in her kitchen is apt to have more than her share of trouble with the baking. As is indicated in the cut, the flour passes right through in lumps, as it must with any device of that kind. She is not getting the results she should were she using a "Hunter's Sifter." Any dealer that will show the difference between sifting flour in a common sieve and a "Hunter's Sifter" to his lady customers will not regret the time spent in so doing.

THE FRED J. MEYERS M'F'G CO.,

COVINGTON, KY.

No. 6—CORN BROOM.



JOSEPH LAY & CO.,

Ridgeville, Ind.,

MANUFACTURERS OF

BROOMS AND BRUSHES OF ALL KINDS.

Those of the Heavier Work a Specialty.

FOR RAILROAD, SHOP, WAREHOUSE, STREET, STABLE. BLOOM, CHILL, CASTING and MOULDERS' BRUSHES, &c., &c.

THE LATEST! THE BEST!!

—STONE—

Self-Adjustable Clothes Wringer.

Different in principle and design from any Wringer in the market.



Send for price-list and terms.

THE STONE MFG. CO.,

Isaac D. Smead, Toledo, President,

COLUMBUS, OHIO.



IRON-

ing Stands! Did you ever try to sell any? Order a sample. Show it to your lady customers. It will astonish you how readily it will sell. DON'T FORGET THAT THERE'S A GOOD PROFIT IN IT FOR YOU, yet it is sold cheap. Do you know that we make Washing Machines (the best also, if not, get our printed matter and prices, they will interest you.

ANTHONY WAYNE MANUFACTURING CO.

FORT WAYNE, IND., U. S. A.

The F. F. ADAMS CO.,

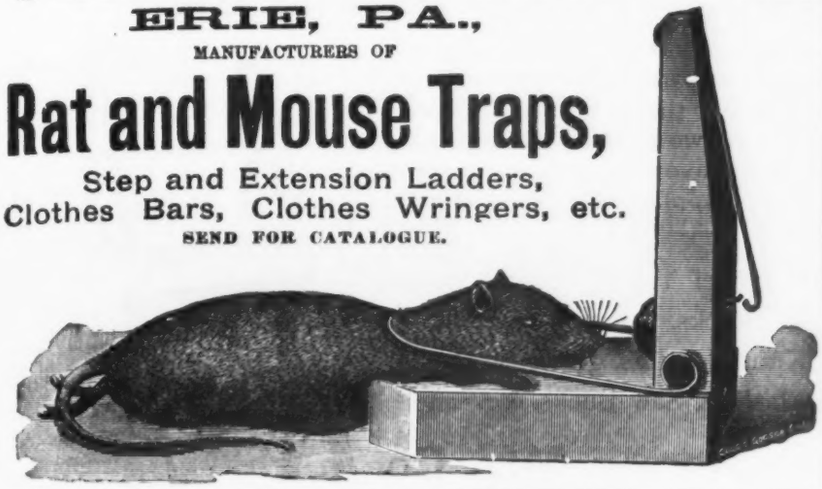
ERIE, PA.,

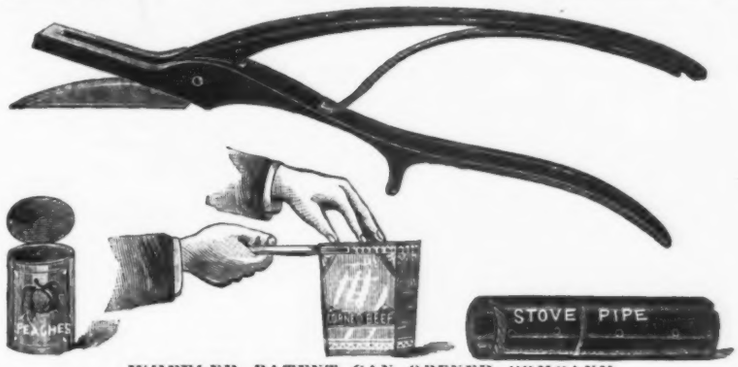
MANUFACTURERS OF

Rat and Mouse Traps,

Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

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WHEELER PATENT CAN OPENER COMPANY.

Surpasses all other instruments for opening cans, irrespective of shape or size.
They are well recommended by those who have them in use. It is the only can opener that will cut off the top of paint pails. There are hundreds in use for this purpose.
It cuts stove pipe, tin pipe, &c., to perfection. The blade is made of the best cutlery steel, and the spring is of the most reliable make. For sale by all wholesale hardware dealers. Samples will be forwarded to any address on receipt of 50c. Address **Wheeler Patent Can Opener Co.**, 102 South Main St., St. Louis, Mo.

ON THE ROAD TO RICHES

BY WM. H. MAHER.

Practical Hints for Clerks and Young Business Men

On Buying and Selling Goods, Selling Goods on the Road, Business Correspondence, Drumming, and all Matters Pertaining to Business.

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The First Step.
Taking Hold.
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A Permanent Situation.
Personal Expenses.
Lessening Competition.
"Telling Tales Out of School,"
Anchors.
A Step Higher.
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Cash.
Selling Goods.
The Traveling Man.
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A Drummer's Experience—Continued.
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Porcelain Lined Lemon Squeezers



Best Common Mouse Traps, Steak Hammers Boot Jacks, Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

Ripley Mfg. Co. Unionville, Conn.

EDWARD S. HOTCHKISS.

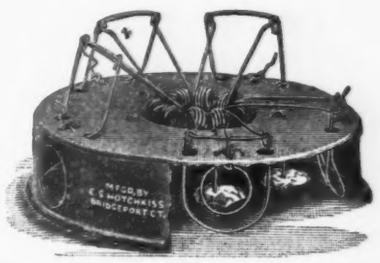
BRIDGEPORT, CONN.

Manufacturer of

HARDWARE.

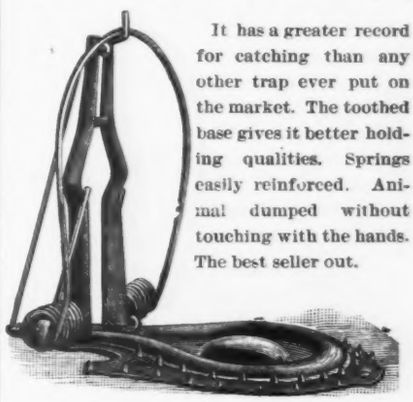
Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches, Horse and Toilet Clippers, Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016

THE DANDY TRAP.



It has a greater record for catching than any other trap ever put on the market. The toothed base gives it better holding qualities. Springs easily reinforced. Animal dumped without touching with the hands. The best seller out.

IT IS A PLATFORM TRAP.

The Animal does not have to pull a bait to be caught.

If pan is touched the Trap is sprung. When placed across runways the animal cannot pass without being caught. Bait with cornmeal on platform. Address

The Theo. J. Ely Mfg. Co.,

CONNEAUTVILLE, PA.

Closes doors without slamming or breaking of Glass.



FOR SALE BY
NORTON DOOR CHECK AND SPRING CO.,
Sears Building, Boston, Mass.
AGENTS WANTED.

AMBITIOUS HOUSEKEEPERS

Pride themselves on being able to accomplish labor with dispatch, and for that reason always try to surround themselves with only the most convenient aids of usefulness. The dealer that will take the time to show the two articles illustrated herewith (two of the handiest things made to have around the house), would have no difficulty in selling dozens of them—in fact, the foregoing applies to any of the following goods which we make, viz.:



Store, Stove and Barrel Trucks, Towel Rollers, Hat and Coat Racks, Lemon Squeezers, Slaw and Kraut Kutters, Knife Trays, Potato Mashers, Saw Bucks, &c.

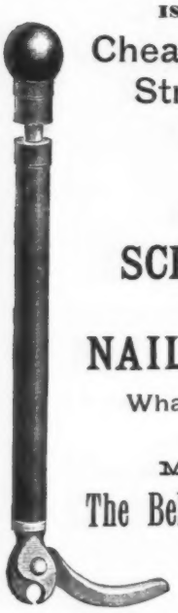
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Can't Hurt the Hand

IS THE



Cheapest,
Strongest,
Quickest,
Best.

WHAT?

SCRANTON'S

IMPROVED

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What more do you want?

MADE BY

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For Sale by DAVID WILLIAMS, 66 and 68 Duane St., N. Y

Wrought Steel Hollow Ware.



"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.



W. R. OSTRANDER & CO.,

195 and 197 FULTON ST., NEW YORK.

Manufacturers of

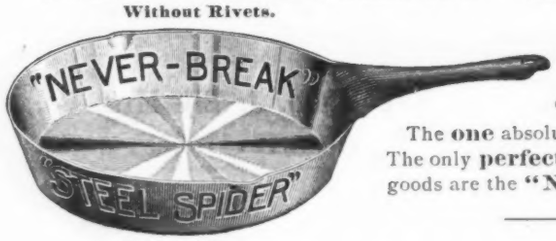
SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



"NEVER-BREAK" COLD HANDLE STEEL SPIDERS "NEVER-BREAK"

Without Rivets.



All One Piece.

The only **One Piece** spider with cold handle is the **"Never-Break."**

The **one** absolutely **clean** handle.

The only **perfectly** polished **steel** goods are the **"Never-Break."**

Riveted Handle.



Only Two Pieces.

Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

A FULL ASSORTMENT OF WROUGHT STEEL HOLLOW WARE.

Manufactured only by **THE BRONSON SUPPLY CO., Cleveland, Ohio.** N. Y. Office, 51 Cliff St.

STEAM GAUGE & LANTERN CO., Syracuse, N.Y.

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Standard Tubular Lamps and Lanterns.



Globe Street Lamp.

THE BEST IN THE WORLD.

Tubular Lanterns,

Tubular Street Lamps,

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Tubular Driving Lamps, etc.



Tubular Square Street Lamp.



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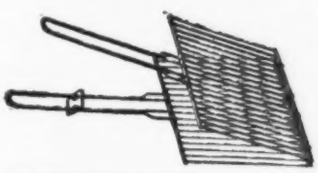
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The Only Ones Perfectly Reliable.

For either store floors or base ment use.

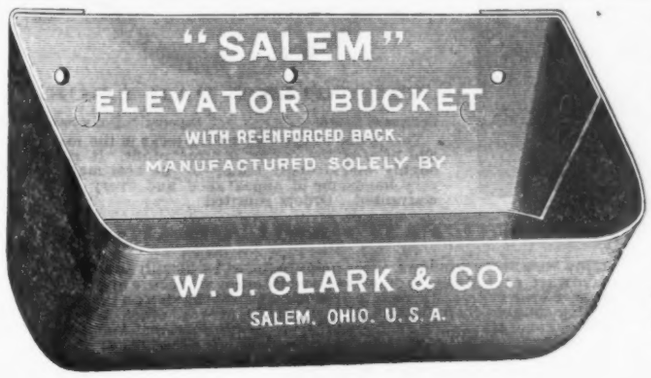
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11 and 13 Dearborn St., - Chicago, Ill., U. S. A



It has no equal for hard service. The reinforced piece stiffens the back and braces the ends.

SELF-LOCKING!

An Entirely New and Excellent Principle for the interior Mechanism of

SCANDINAVIAN PAD-LOCKS.

(PROTECTED BY SEVEN PATENTS.)

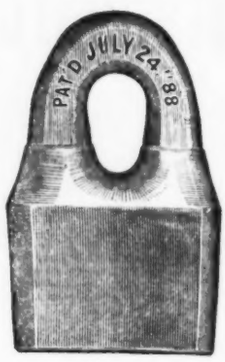


Secure. Convenient.



Showing Interior Works.

Durable. Neat Finish.



Tumblers are all VERTICAL, held in place by the metal of the CASE, which makes the LOCK extremely *durable*. The principle insures *perfect security* while (being self-locking) the Locks are *very convenient*.

☞ *ALL AT POPULAR PRICES.*

Fine SOLID BRONZE LOCKS, beautifully and highly polished. Cheaper BRASS LOCKS. ALL MALLEABLE IRON LOCKS with Flat Steel Keys, and cheaper grade Locks, Maroon finish, with light, attractive Cast Steel Keys.

HANDLED BY MOST OF THE LEADING WHOLESALE DEALERS IN THE U. S. WRITE FOR PRICES, SAMPLES, AND ANY INFORMATION WANTED, TO

SLAYMAKER, BARRY & CO.,

Sole Manufacturers, Lancaster, Pa., U.S.A.

The only Self-Locking Scandinavian Pad-Lock ever Successfully Manufactured.



CAN OPENER.

Mr. Hardwareman:

This Can Opener has merit at small cost. We are going to let the people know it by advertising it in home papers. They will soon be asking you for "one of those Best Yet Can Openers." Will you be prepared? Sample dozen from any N. Y. House, $1.25. Sample by mail, 20c.

HASBROUCK ALLIGER,

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THE SMITH & EGGE MFG. CO.

BRIDGEPORT, CONN.





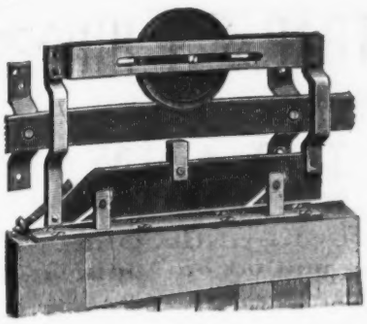
THE GIANT PAD LOCK.

Centennial Award. "Superior in Every Respect.

This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

THE GIANT METAL SASH CHAIN

is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."



LANE'S PATENT NOISELESS STEEL

PARLOR DOOR HANGER.

This Hanger is made of Steel.
The Wheel is also Steel, except the filling or tread.
The Track is of Steel.
The Hanger is Anti-Friction.
More nearly Noiseless than any other.
Ease of adjustment.

Can be erected with half the labor others require.
Track will not swell, shrink or warp out of true.
No cutting of doors.
No matching of hardware.
Simplicity in all its parts.
Durability.

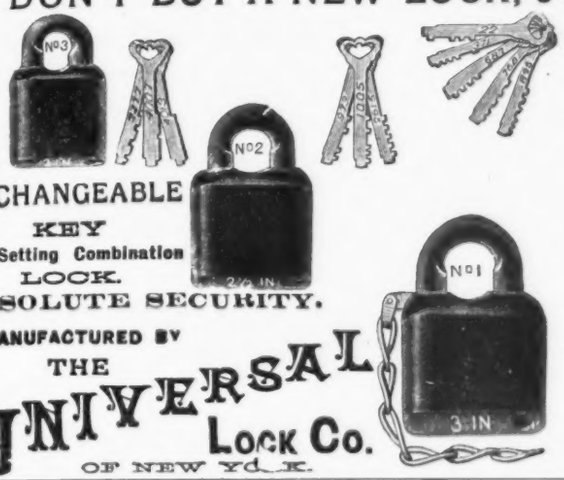
Price per set for Double Doors, including 14 feet of Track, Gravity Stops and Floor Guides, $6.00.

Manufactured by

LANE BROS., Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers St., New York.

DON'T BUY A NEW LOCK, JUST BUY A DIFFERENT KEY.



A CHANGEABLE KEY
Self-Setting Combination LOCK.
ABSOLUTE SECURITY.

MANUFACTURED BY THE UNIVERSAL Lock Co. OF NEW YORK.

This lock differs from all others in the fact that it will set itself to any one of 4013 different keys with which the user may choose to lock it. Only the key used in locking will unlock it.

The advantage will naturally become apparent when for any reason whatever the user wishes to change the means of securing his premises, he need only buy a new key. Obviously as many different locks for securing the premises will be available as there are keys in the possession of the holder.

PRICE LIST.

No. 1 (with Chain)	per dozen,	$24.00
" 1	"	21.00
" 2	"	18.00
" 3	"	15.00

Extra Keys, 10 cents each.

NOTE.—Keys numbered from 1 to 4013 inclusively.

—SALES DEPOTS:—

John H. Graham & Co., - - 113 Chambers St., New York.
C. H. Gurney Company, - 247-249 Lake St., Chicago, Ill.

ATTENTION.

CUSTOM HOUSE, PORTLAND, MAINE, July 13, 1890.

AMES SWORD CO., Chicopee, Mass.

GENTLEMEN: I am glad to learn that your locks are to be adopted by the Treasury Department for the bonded warehouses. The samples from your works sent here last fall were thoroughly tested during the winter and proved satisfactory.

Your obedient servant,

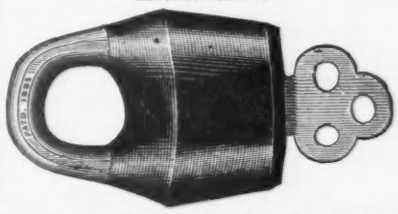
(Signed) CHAS. W. ROBERTS, Supt. of Warehouses.

PATENT PERFECTION PADLOCK,
MANUFACTURED BY
AMES SWORD CO., - Chicopee, Mass., U. S. A.

KEYSTONE LOCK WORKS,

E. T. FRAIM, Lancaster, Pa., U. S. A.

MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS**. 44 different grades and sizes.

Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

SURPLESS, DUNN & ALDER,

General Agents, 97 Chambers St., New York.



OSBORNE'S PATENT

MEAT JUICE PRESSES

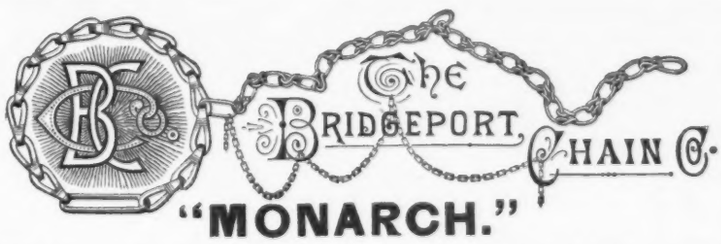
PRICES:

No. 1, $1.25. No. 2, $1.75. No. 2, with clamp, $2.00. No. 3, $3.50.
No. 4, $5.00. No. 5, $10.00.

DISCOUNT TO THE TRADE.

Manufactured by **H. F. OSBORNE,** Newark, N. J.

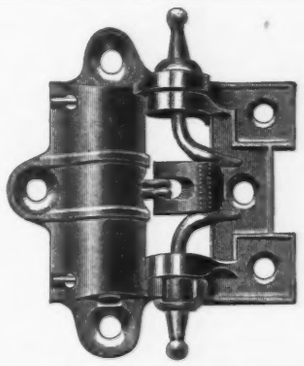
These presses are designed to extract the juice from freshly **Broiled Steak.** The yield should be about six ounces from one pound of round steak, costing from six to twelve cents. It has been found that **Beef Tea,** however made, contains no nourishment. The albumen coagulates at so low a temperature, nearly 100° below the boiling point, that it is unsafe to warm the expressed juice above the temperature of the body. Tepid water may be added, but avoid **Hot Water.** Ask your physician about it.



"MONARCH."

"MONARCH" SASH CHAIN—Made of a Bronze Metal having great tensile strength. The most reliable, lowest priced, and best Sash Chain in America. Also Steel Sash Chains, Triumph Wire Chains, Plumbers' Safety Chains, &c. Architects generally are specifying the Sash Chains made by

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn. Send for catalogue.



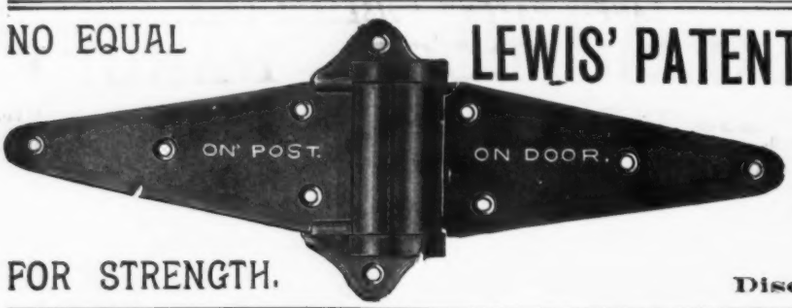
NEW IDEA SPRING HINGE

holds the door strongest when closed, resistance gradually decreases in opening, and increases in closing the door. A covered (patented) hold-back Spring Hinge. Full particulars. Free Sample and Prices by mentioning this paper.

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145 River St., Freeport, Ill.

NO EQUAL



FOR STRENGTH.

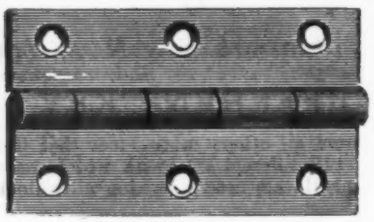
LEWIS' PATENT STRAP AND T HINGES

—MANUFACTURED BY—

E. B. LANMAN,

Columbus, Ohio.

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CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

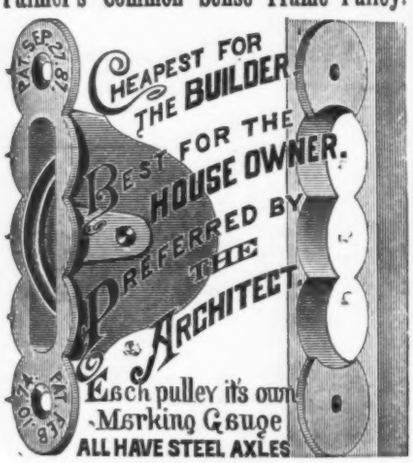
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SASH WEIGHTS

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VICTOR MFG. CO., Newburyport, Mass.



Showing one-half set of hangers attached to door.

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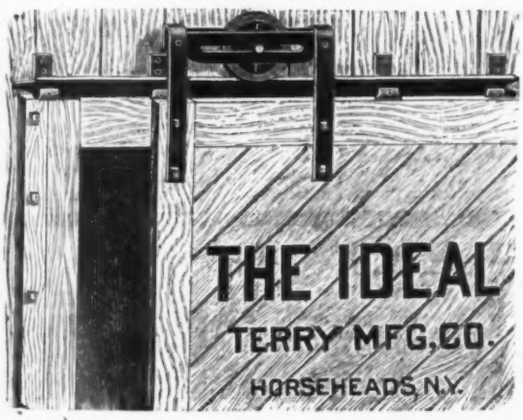


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PRICE LIST.

	Per Doz. prs.
HANGERS, No. 5, to run 6 feet, 3½ in. wheel,	$10.00
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RAIL, per foot,	6½ cents;

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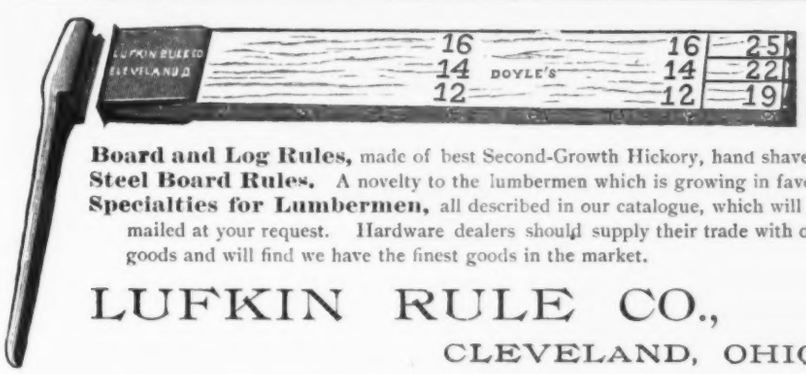
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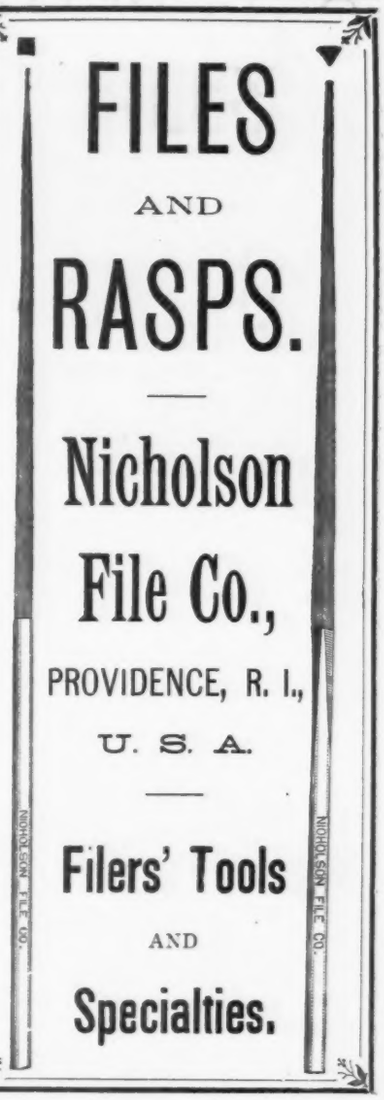
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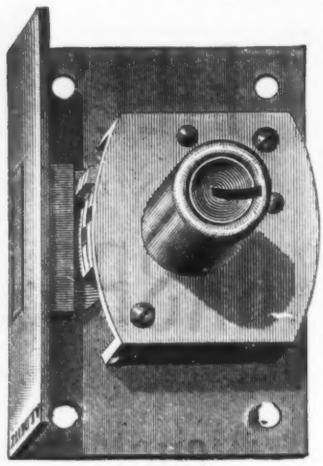


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Important features are in securely locking when open or closed, and simultaneously carrying the MEETING RAILS in position, and drawing them closely together.

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PAT. NOV. 15, '87.

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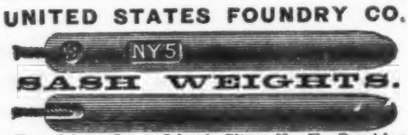
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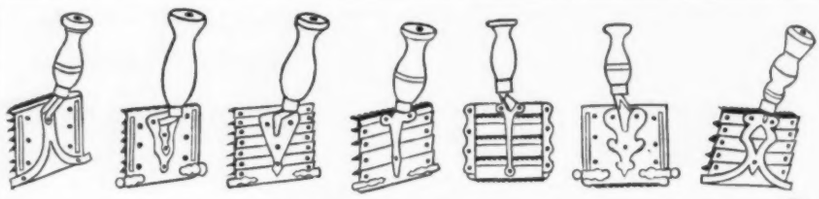
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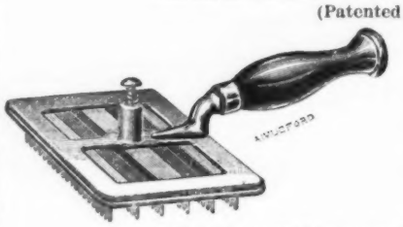
Southington Cutlery Co.,

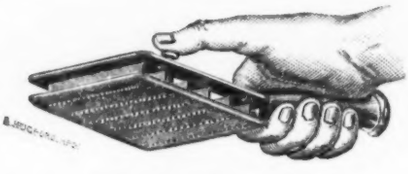
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The "MAUD S" CURRY COMB,

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(Patented Nov. 4, 1884.)



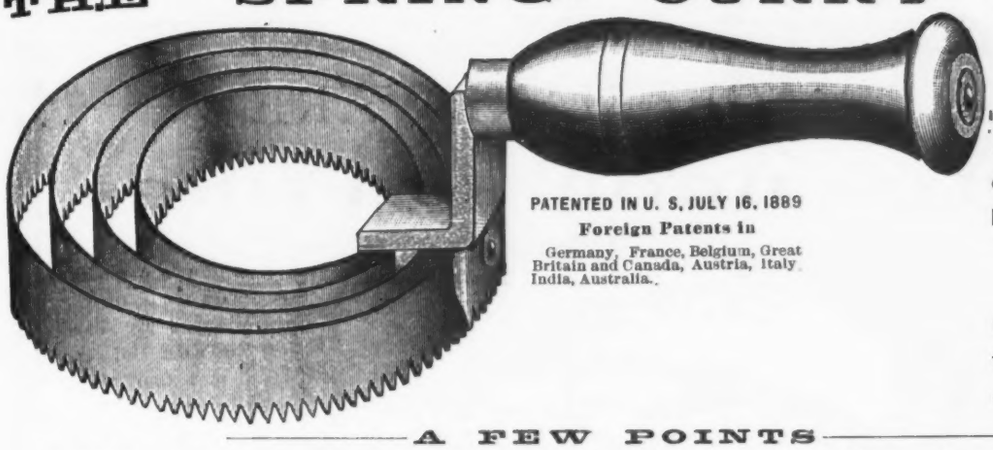


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A FEW POINTS

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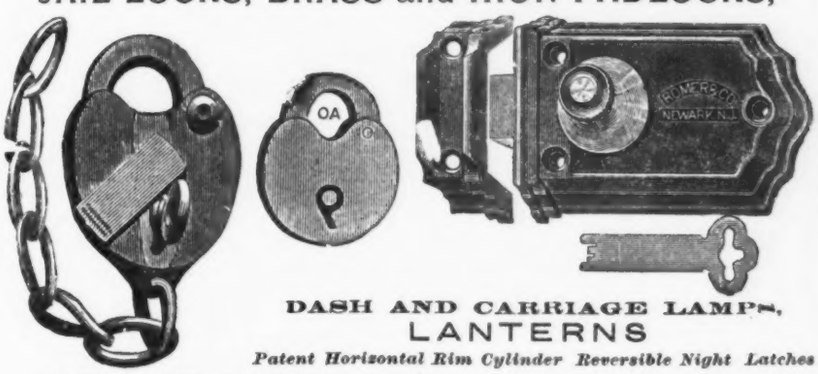
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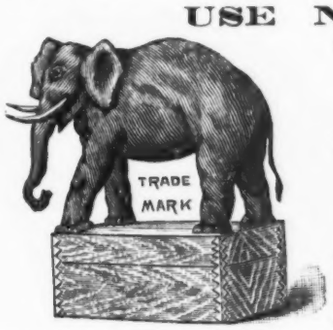
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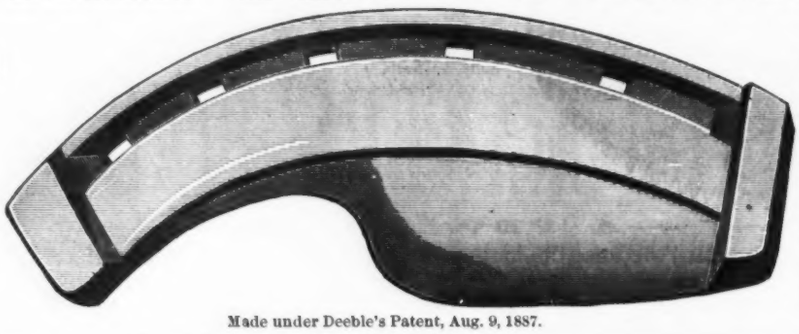
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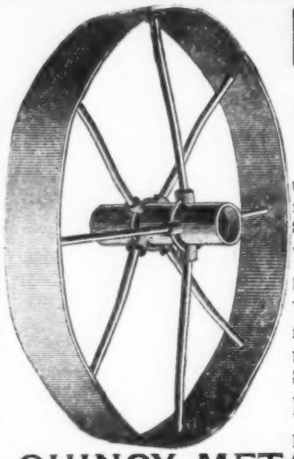
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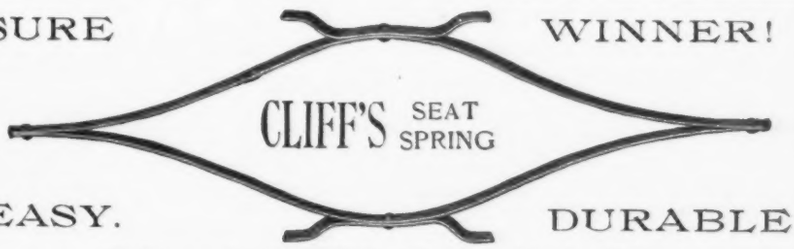
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6 DIFFERENT STYLES OF SPOUTS.
SAMPLE 15¢.
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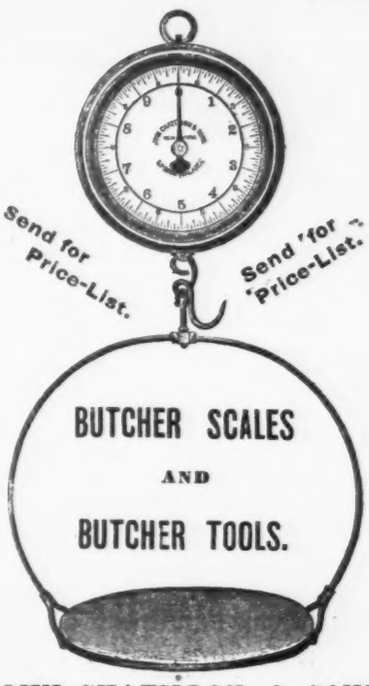
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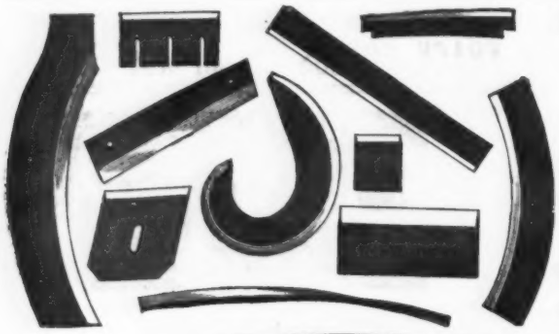
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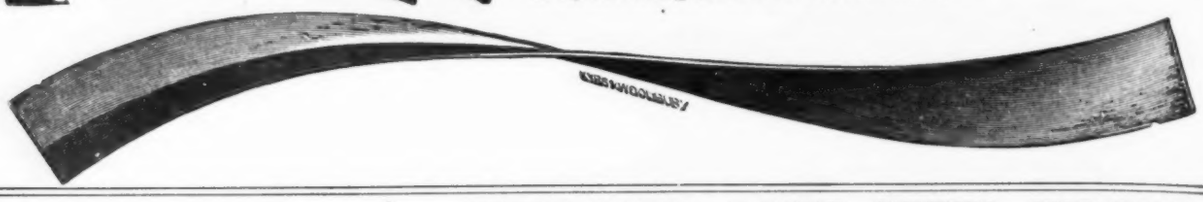
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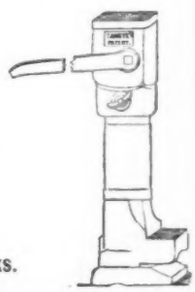
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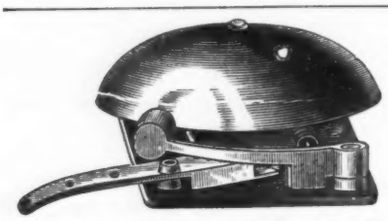


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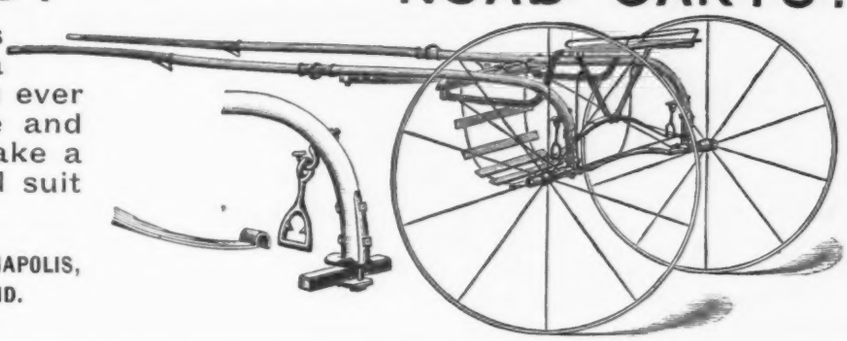
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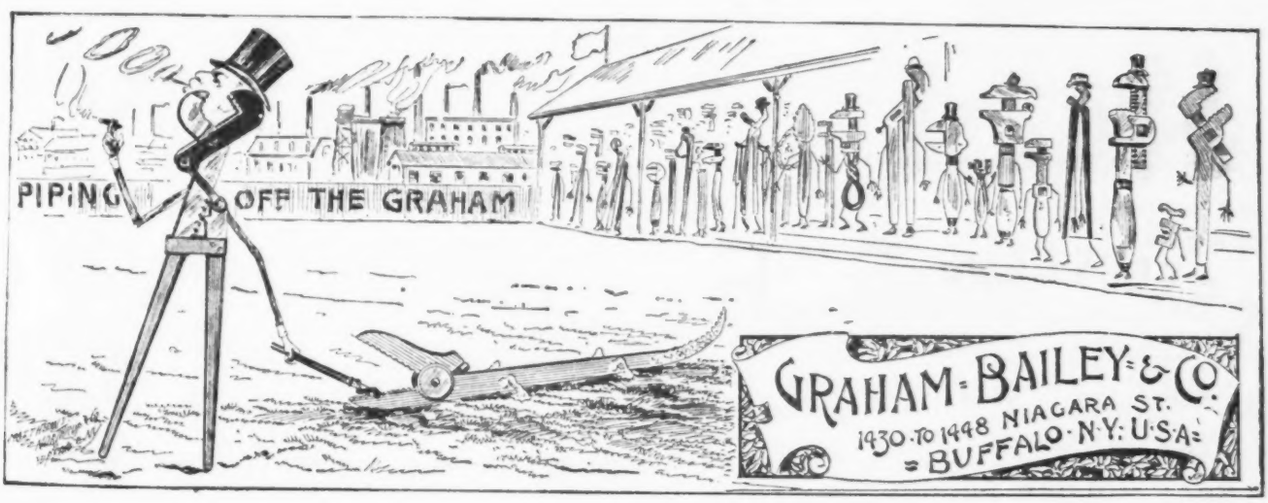
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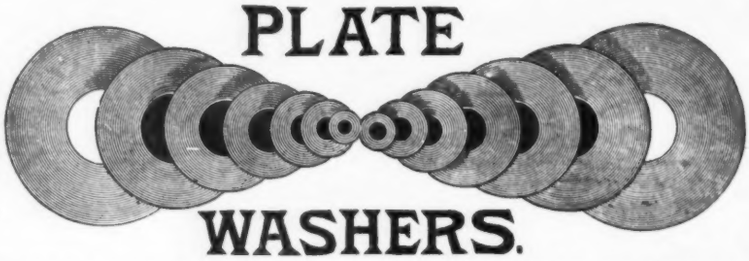
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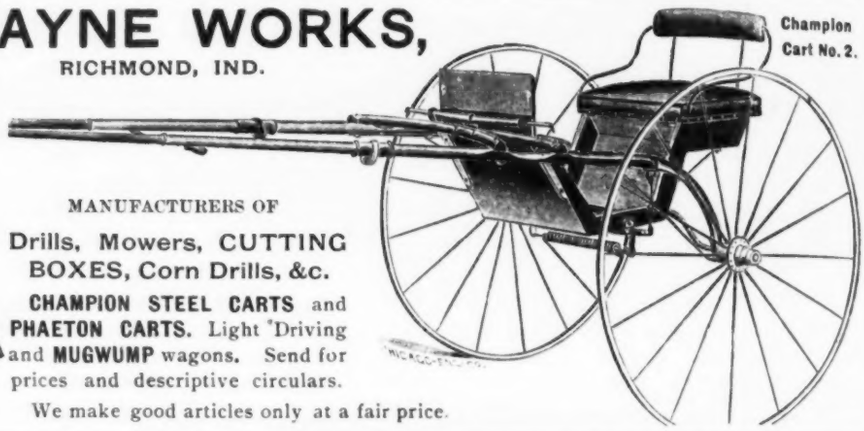
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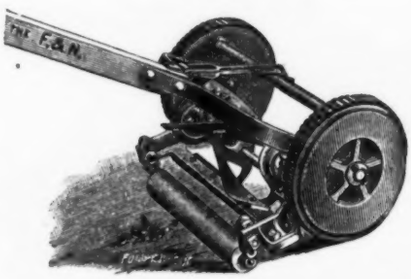
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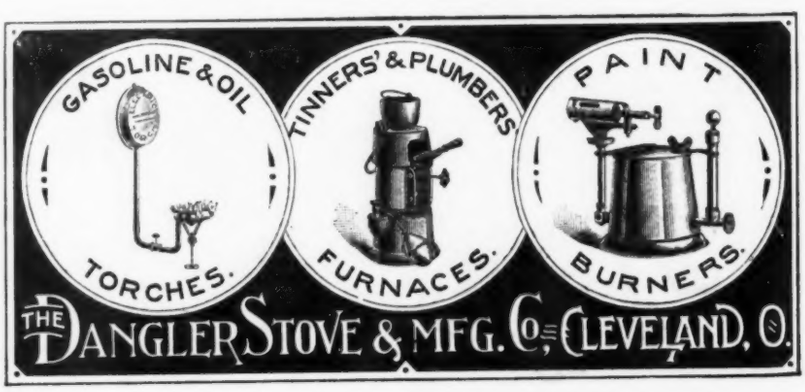


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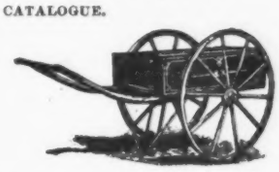
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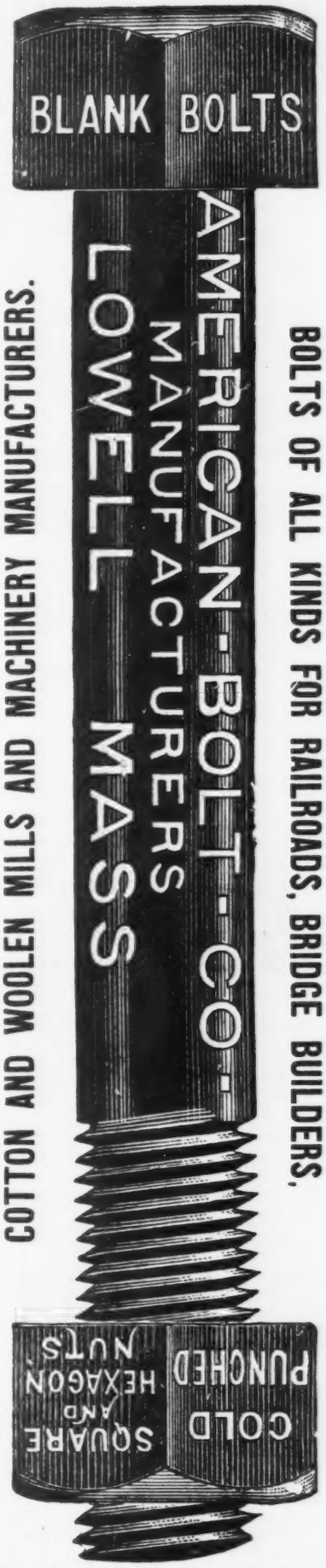
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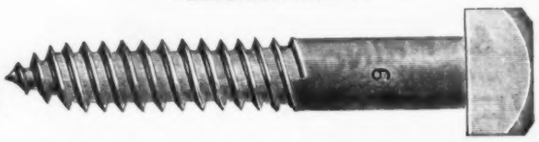
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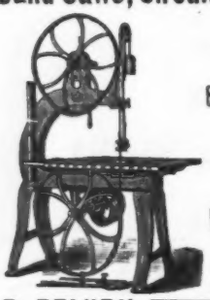
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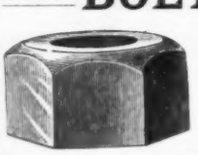
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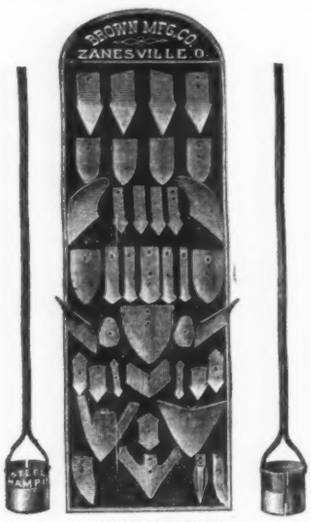
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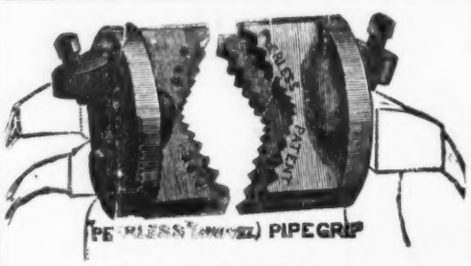
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N. Y. Belting & Packing Co., N. Y.
Page Belting Co., Concord, N. H.
Shults Belting Co., St. Louis, Mo.

Bicycles.
Coventry Machinists Co, L'd, Boston, Mass.
Eagle Bicycle Mfg. Co., Stamford, Conn.
Hartford Cycle Co., Hartford, Conn.
Livingston, M. V. Cycle Mfg. Co., Westboro, Mass.
Overman Wheel Co., Chicopee Falls, Mass.

Bird Cages.
Hendryx, Andrew B. & Co., New Haven, Conn.

Bits and Braces.
American Bit Brace Co., Buffalo, N. Y.
Amidon, C. H., Buffalo, N. Y.
Bridgeport Gun Implement Co., 19 Maiden Lane, N. Y.
Fray, Jno. S. & Co., Bridgeport, Conn.
Saxton, F. R., Buffalo, N. Y.

Blinds, Window.
Hartman & Durstine, Wooster, Ohio.

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Cleveland Block Co., Cleveland, O.
Coleman, Walter & Sons, Providence, R. I.
Laughlin, Thos. & Son, Portland, Me.
McMillan, Wm. H., 113 South, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Shubert & Cottingham, Phila.
Toledo Block Works, Toledo, Ohio.

Blowers.
Buffalo Forge Co., Buffalo, N. Y.
Sturtevant, B. F., Boston, Mass.

Boiler Makers' Rolls.
New Doty Mfg. Co., Janesville, Wis.

Boiler Plates.
McIlvain, Wm. & Sons, Reading, Pa.

Boiler Tubes.
Continental Iron Works Co., Brooklyn, N. Y.

Boilers, Copper.
Randolph & Clowes, Waterbury, Conn.

Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt, N. Y.
Broomell, Schmidt & Co., Ltd., York, Pa.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Edge Moor Iron Co., Wilmington.
Foundry & Mch. Dept., Harrisburg, Pa.
Pollock, W. B. & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Bolt Cutters.
Chambers Bros. Co., Philadelphia.
Howard Iron Works, Buffalo, N. Y.
Porter, H. K., Boston, Mass.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Ore.
Leigh, E. B., St. Louis, Mo.
Walcott & West, Syracuse, N. Y.
Williams, David, 66 & 68 Duane, N. Y.

Boot Calks
Lufkin Rule Co., Cleveland, Ohio.

Boxes, Hdw. Shell, &c.
Green, S. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.
National Metal-Edge Box Co., Phila.

Box Straps.
Cary Mfg. Co., 41 & 43 Centre, N. Y.

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Davol, John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., 421 Broome, N. Y.
Waterbury Brass Co., 296 B'way, N. Y.

Brass Butt Hinges.
Tiebout, W. & J., 16 & 18 Chambers, N. Y.

Brass Founders.
Cramp, E. H. & Co., Philadelphia, Pa.
Deoxidized Metal Co., Bridgeport.
Reeves, Paul S., Philadelphia.
Springfield Foundry Co., Springfield, Mass.

Brass Goods.
Brass Goods Mfg. Co., 88 Chambers, N. Y.

Brooms and Brushes.
Lay, Jos & Co., Ridgeville, Ind.

Brushes.
Remous, Kleinle & Co., Baltimore, Md.

Buffing Composition.
Matchless Metal Polish Co., Chicago, Ill.

Butcher and Shoe Knives, *Manufacturers of.*
Wilson, John, Sheffield, England.

Butts and Hinges.
Lanman, E. B., Columbus, Ohio.
Sabin Machine Co., Montpelier, Vt.
Tiebout, W & J., 16 Chambers, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Can Openers.
Alliger, Hasbrouck, 125 Chambers, N.Y.
Goodell Co., Antrim, N. H.
Wheeler Patent Can Opener Co., St. Louis, Mo.

Car Axles.
Roberts, A. & P. & Co., Phila.

Car Wheels.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Whitney, A. & Sons, Phila.

Carriage Hardware, *Makers of.*
Clapp, E. D. Mfg. Co., Auburn, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe, Birmingham, Conn.

Castings, Iron and Steel.
Arcade Malleable Iron Co., Worcester, Mass.
Booth, The Lloyd, Co., Youngstown, O.
Buffalo Steel Foundry Co, Buffalo, N Y.
The Burr & Houston Cc., Brooklyn, N.Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morris, Tasker & Co., 224 South Third Street, Phila.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Mooy, Cleveland, O.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Sharon Steel Castings Co., Sharon, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
St. Louis Steel Fdry Co., St. Louis, Mo.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron W'ks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Thos. D. West F'dry Co., Cleveland, O.
Watkins Chilled Plow Co., Watkins, N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Hendryx, Andrew B. & Co., New Haven, Conn

Chemicals and Apparatus.
Eimer & Amend, 205 Third ave., N. Y.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Clippers.
Lee, Jesse & Sons, Philadelphia, Pa.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.
Waddel, Jno. M. Mfg. Co., Greenfield, Ohio.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited), 4 and 6 Warren, N. Y.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.

Cork Pullers.
Greely, B. J., Boston, Mass.
Meriden Malleable Iron Co., Meriden, Conn.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Jersey City Galvanizing Co., Jersey City, N. J.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Cottages, Portable.
Iron Cottage Co., Grand Rapids, Mich.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass
Southington Cutlery Co., Southington, Conn.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N.Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Cutlery Co., Chicago, Ill.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Empire Knife Co., W. Winsted, Conn.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutting Nippers.
Todd, H. B., Meriden, Conn.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.
Union Hdw. Co., Torrington, Conn.

Door Checks.
Morton Door Check & Spring Co., Boston, Mass.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horsehead, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Barnsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Burnham, G. & Co., Worcester, Mass.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wells Mch. Works, Fostoria, Ohio.
Wiley & Russell Mfg. Co., Greenfield Mass.
Woodward & Rogers, Hartford, Conn.

Dripping Pans.
St. Louis Dripping Pan Co., St. Louis, Mo.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevators, *Makers of.*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery Wheels.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engineering Specialties.
Curtis Regulator Co., Boston, Mass.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Harrisburg Car Mfg. Co., Harrisburg, Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Engraving and Printing.
Gies & Co., Buffalo, N. Y.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fence Posts.
Smolley, Jno. G., Connersville, Ind.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.
Reynolds Bros., Columbus, Ohio.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill,

(See Alphabetical Index, Page 118.)

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
LePage Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.

Grinding Mills.
Hill, A. M., New Haven, Conn.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Star Machine Co., Philadelphia, Pa.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hair Crimpers.
Chicago Nickel Works, Chicago, Ill.

Hames.
Wilcox, Wm. Mfg. Co., Middletown, Ct,

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Salomon, L., 118 Chambers, New York.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Elirich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Phila., Pa.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Sayre, L. A., Newark, N. J.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Fitting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co., Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironware, Galvanized.
Hill, Jas. Mfg. Co., Providence, R. I.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lantern Holders.
Safety Lantern Holder Co., Baltimore.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
"Champion"
Enterprise Mfg. Co., Philadelphia, Pa.
F. & N. Lawn Mower Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
"Champion."

Lawn Sprinklers.
McGowan, J. H. Co., Cincinnati, O.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs. *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Romer & Co., Newark, N. J.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Knowles Loom W'ks, Worcester, Mass
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moers, E. M., Cincinnati, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis
National Machinery Co., Tiffin Ohio
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Pryibil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L, Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Meat Presses.
Osborn, H. F., Newark, N. J.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Bleidgett, Phila.

Mining Knives.
Shepard, Sidney & Co., Buffalo, N. Y.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mcl. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chailliaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Oil Tanks.
Neil, Wm. & Co., Chicago, Ill.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Haik & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord. Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris, Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y.
Dieudt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulleys.
Menasha Wood Split Pulley Co., Menasha, Wis.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Ripley & Bronson, St. Louis, Mo.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Columbiana Pump & Machine Co., Columbiana, Ohio
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

(See Alphabetical Index, Page 118.)

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
Ely, Theo. Mfg. Co., Conneautsville, Pa.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.
Waddel, Jno. M. Mfg. Co., Greenfield, O.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.
Wayne Works, Richmond, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls, N.Y
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Empire Knife Co., West Winsted, Conn.
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shot.
Globe Shot Works, Philadelphia, Pa.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Am. Skate Co., Philadelphia, Pa.
Dame, Stoddard & Kendall, Boston, Mass.
Peck & Snyder, 124 Nassau, N. Y.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Hall, Elton & Co., Wallingford, Ct.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 108 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton. N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton. N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 83 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Chess, Cook & Co., Pittsburgh, Pa. Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Goddard, Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Butts & Ordway, Boston, Mass.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

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Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Cincinnati Tool Co., Cincinnati, Ohio.
Fray, Jno. S. & Co., Bridgeport, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trowels.
Bradley & Pierson Mfg. Co., 135 Duane, New York.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.
Riehlé Bros., 9th St., Phila.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.
Sherwood Mfg. Co., Buffalo, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Colby Hdw. & Electric Co., Chicago, Ill
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 25 Dey, N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Mason Iron Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Washing Machines.
Wayne, Anthony Mfg. Co., Ft. Wayne, Ind.

Water Motors.
Belknap Motor Co., Portland, Me.

Wedges, Axe.
Wooster, F. V., Boston, Mass.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth Holders.
Hosford, John, Monroeville, O.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.
Woods, Sherwood & Co., Lowell, Mass

Wire Machinery.
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Wire Nail and Tack Machines.
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Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
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Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
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Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Malin & Co., Cleveland, O.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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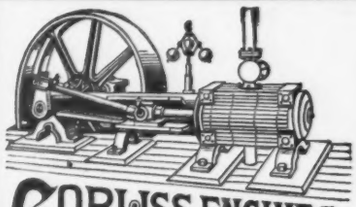
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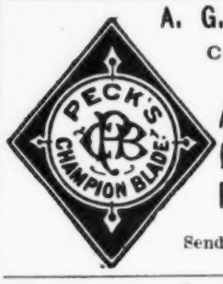
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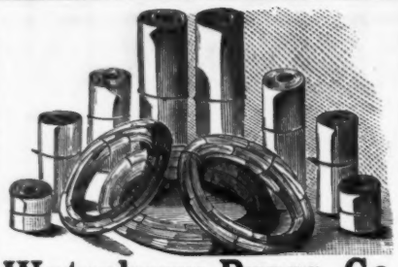
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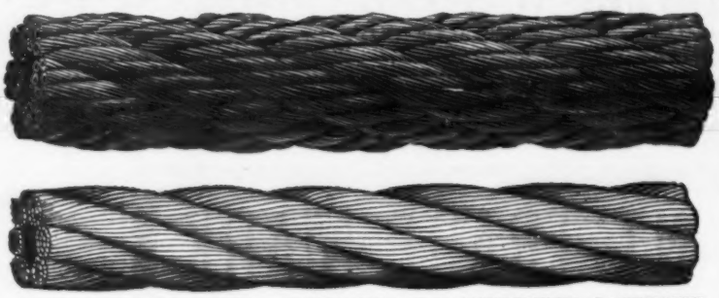
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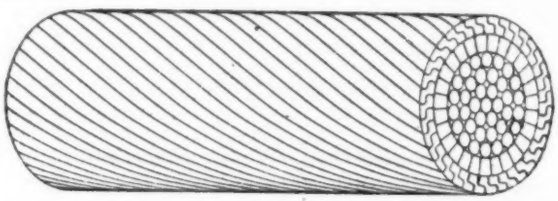
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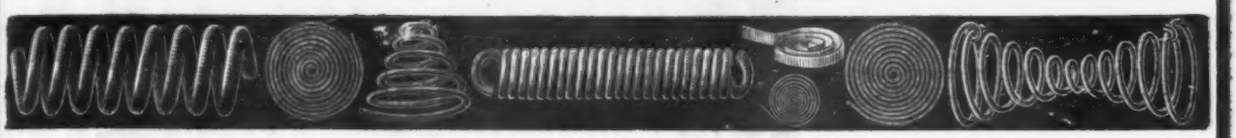
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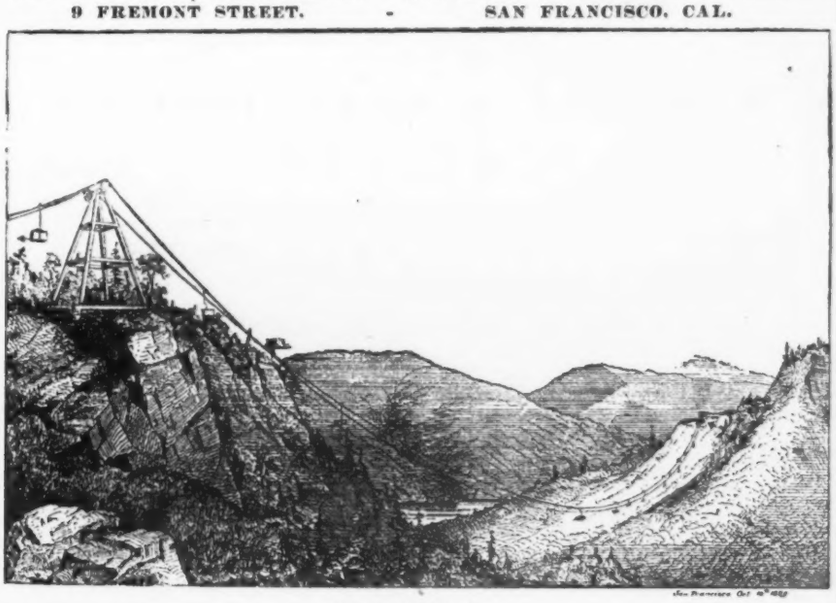
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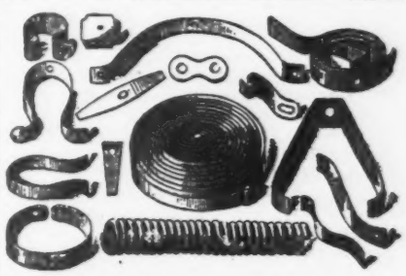
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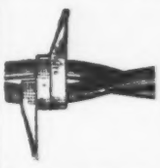
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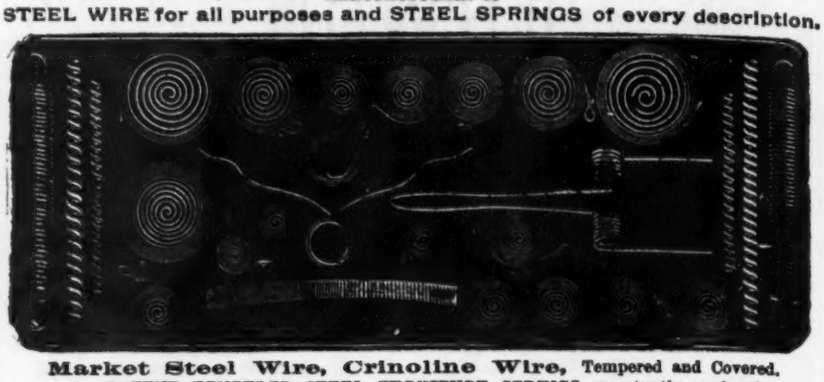
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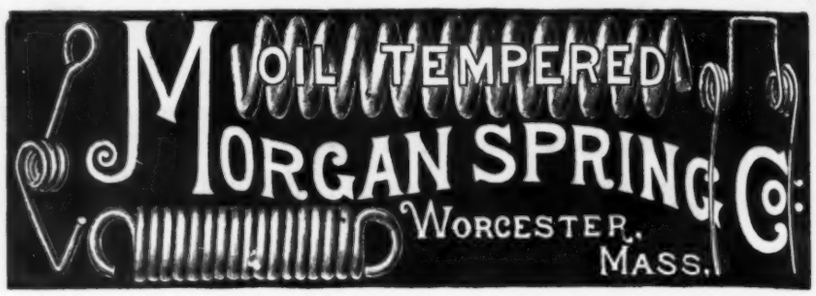
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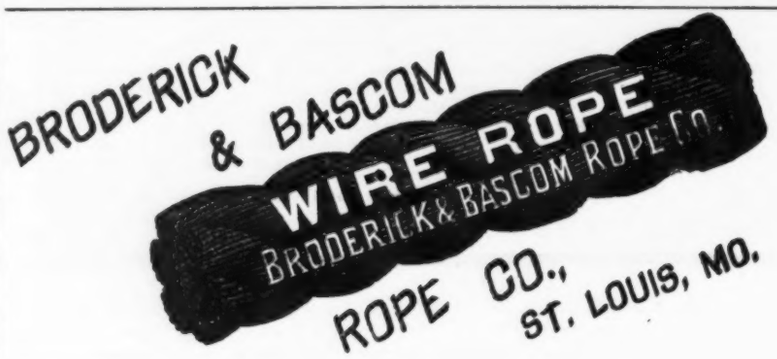
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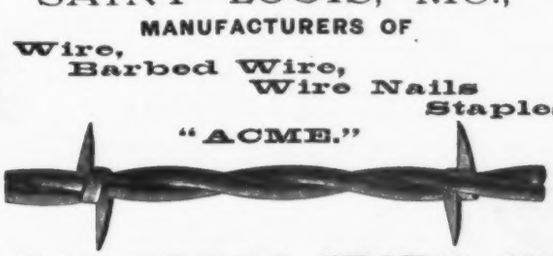
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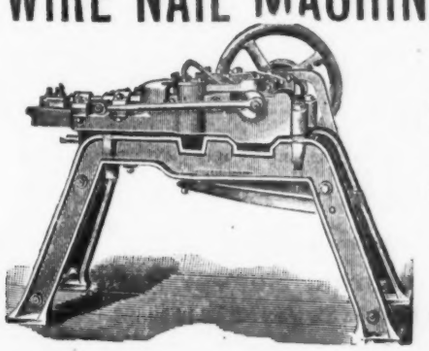
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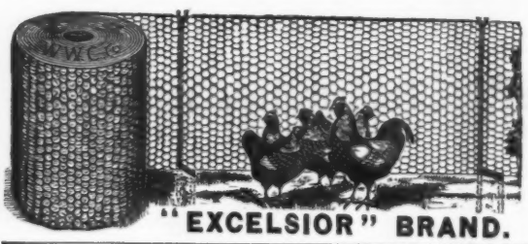
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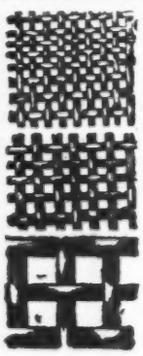
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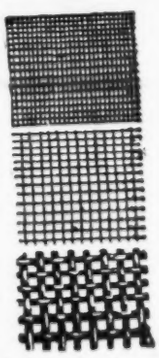
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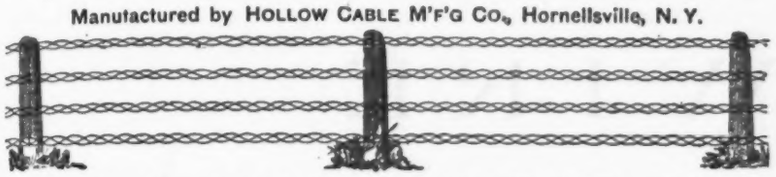
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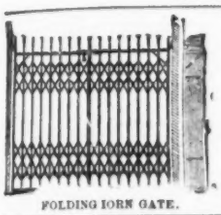


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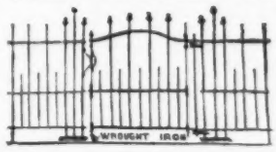
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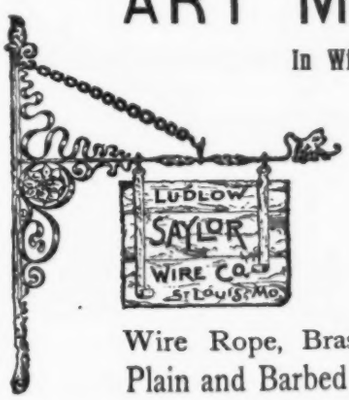
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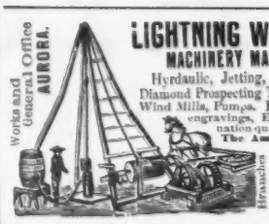
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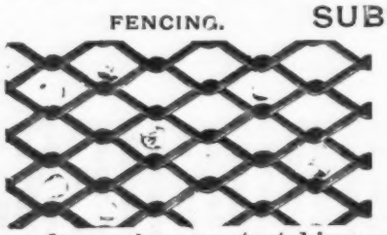
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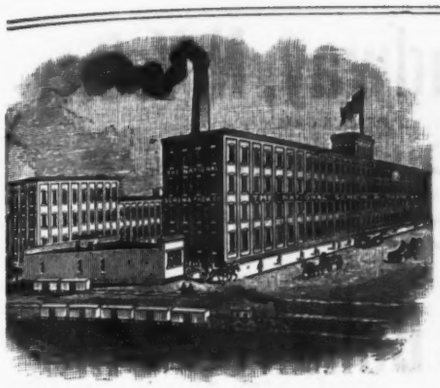
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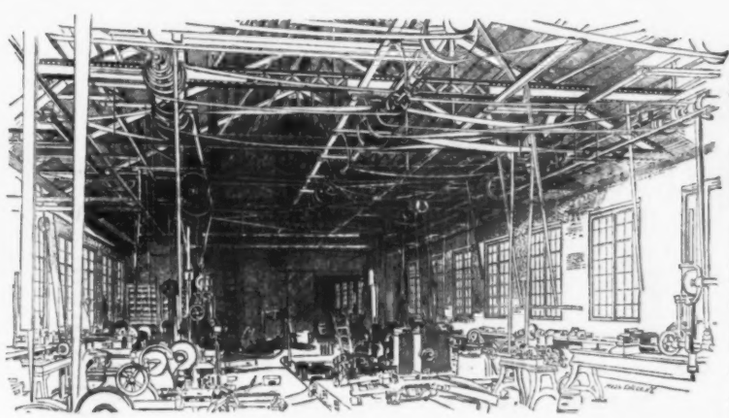
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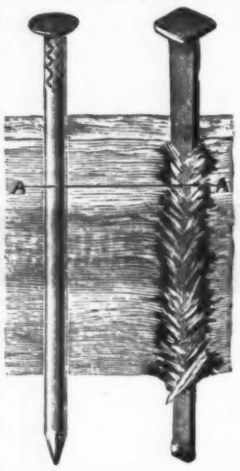
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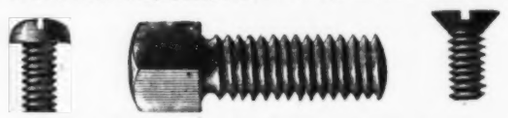
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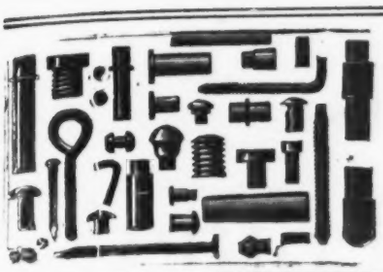
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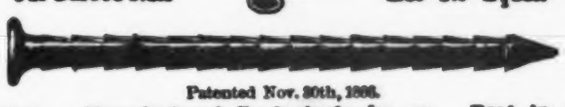
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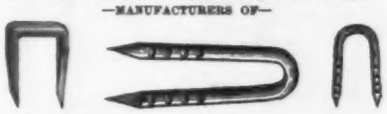
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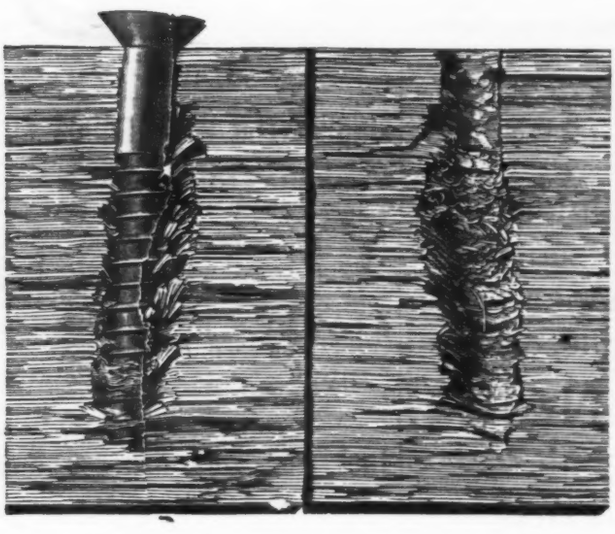
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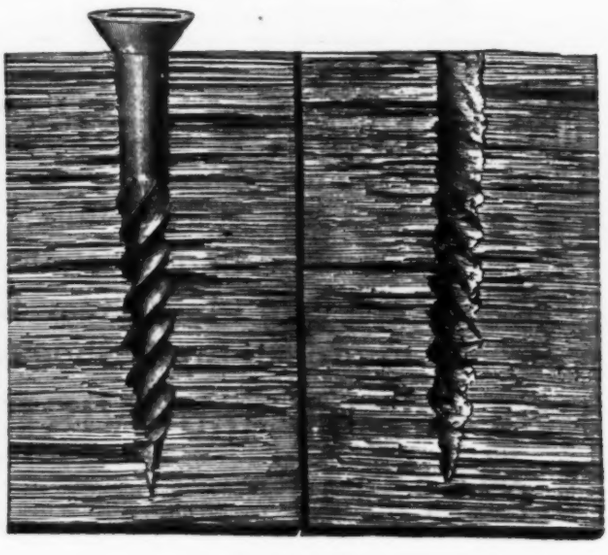
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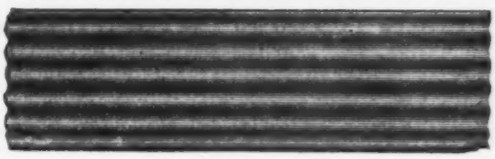
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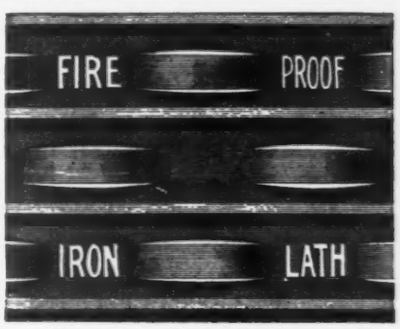
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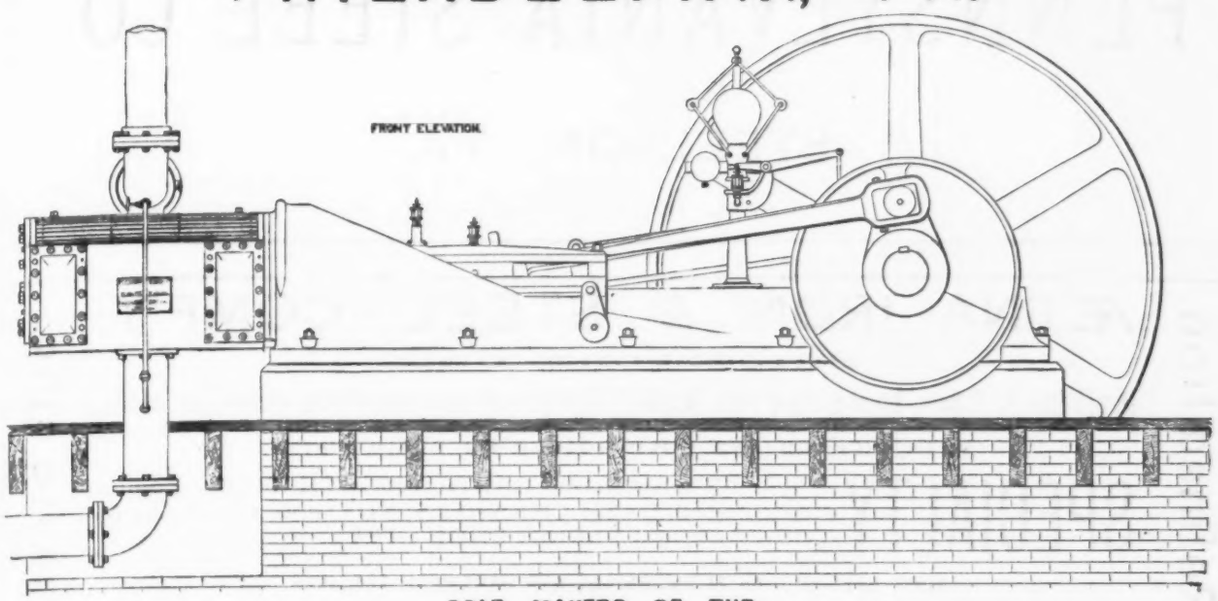
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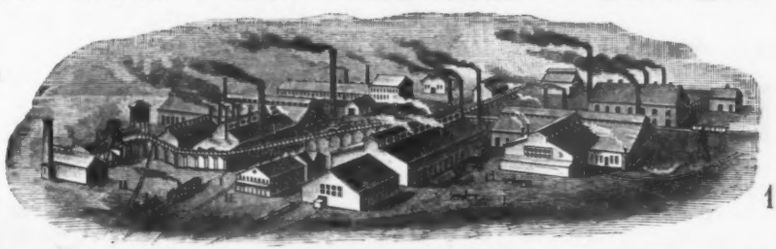
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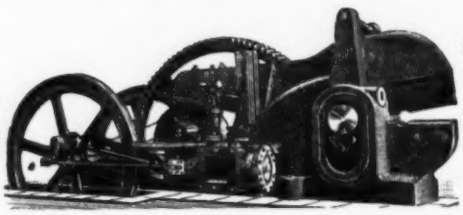
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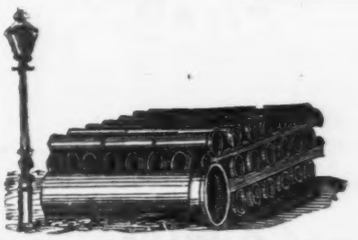
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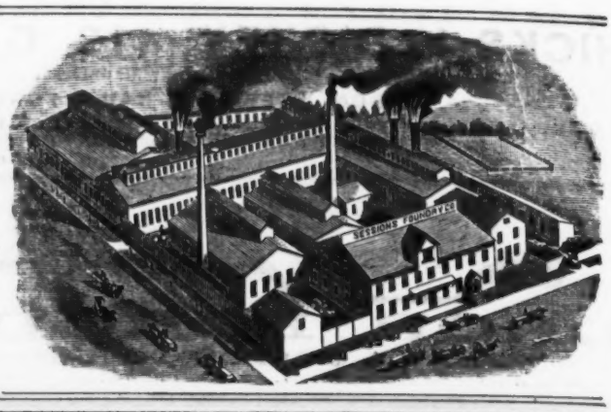
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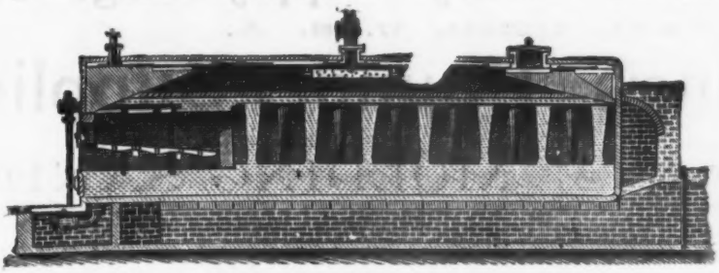
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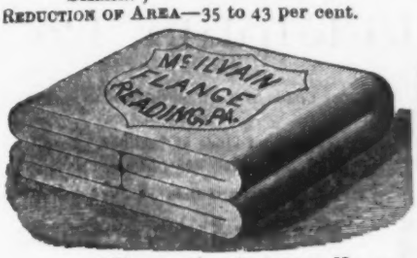
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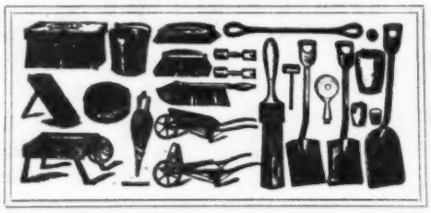
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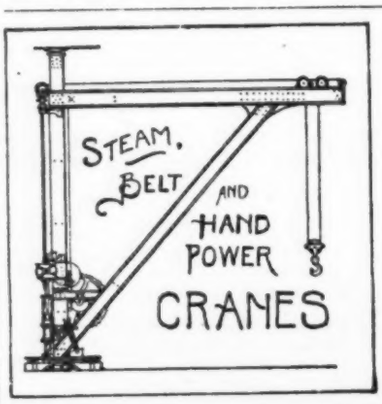
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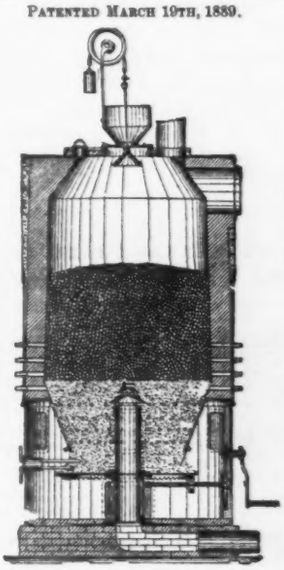


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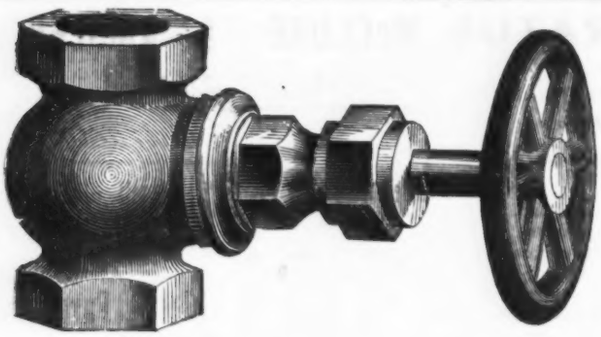
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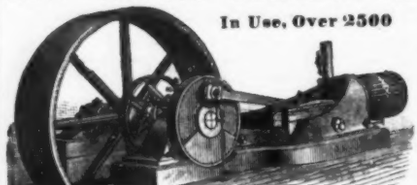


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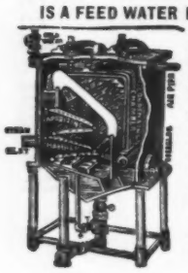
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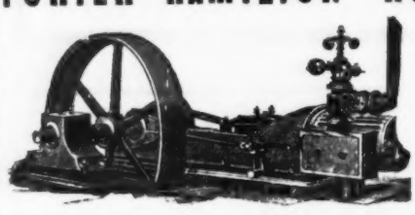
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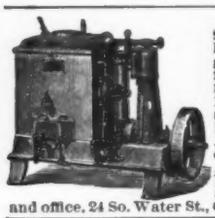
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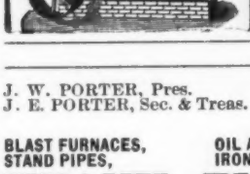
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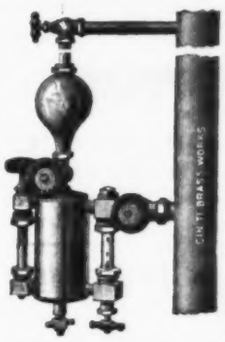
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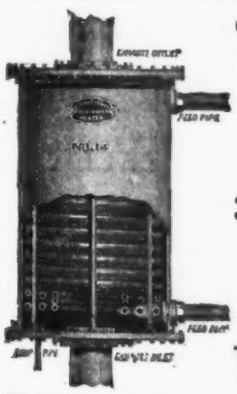
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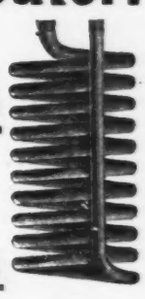
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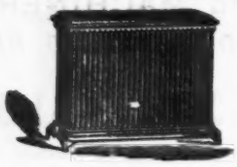
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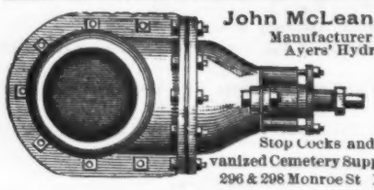
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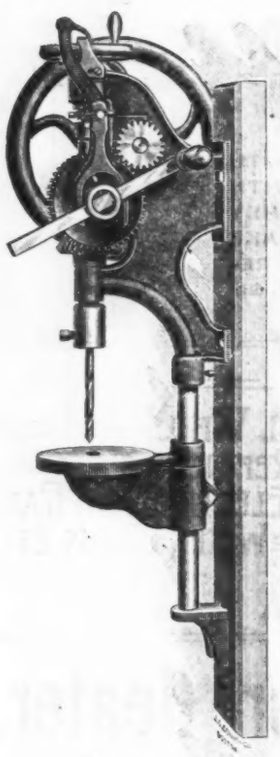
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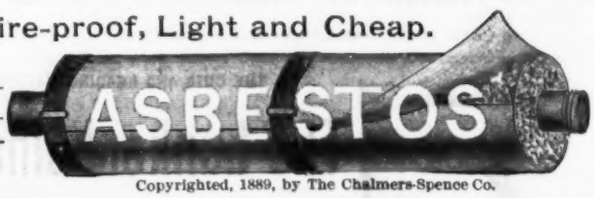
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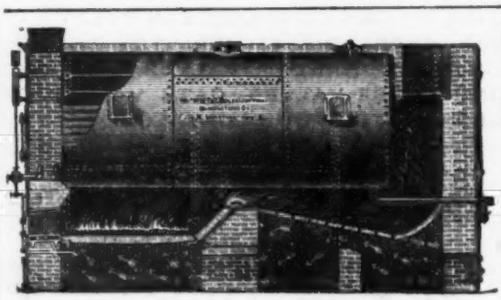
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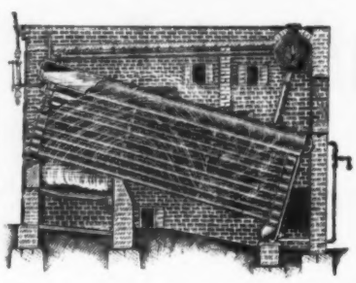
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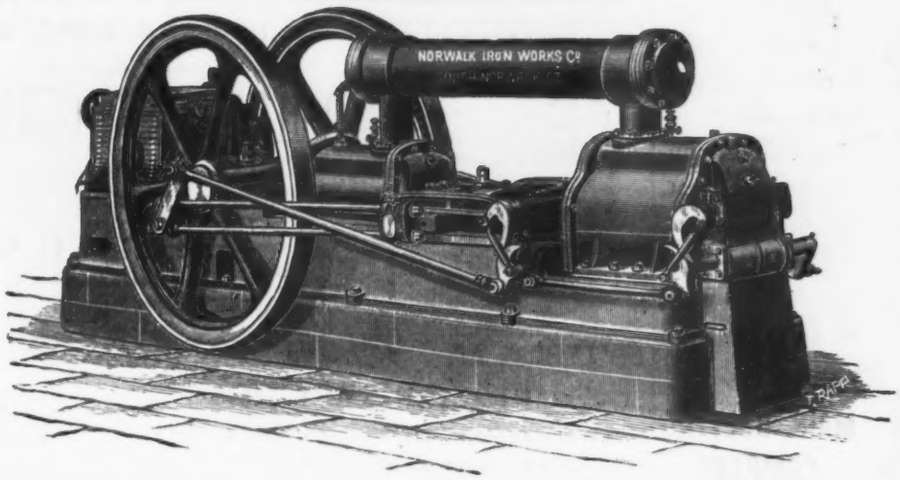
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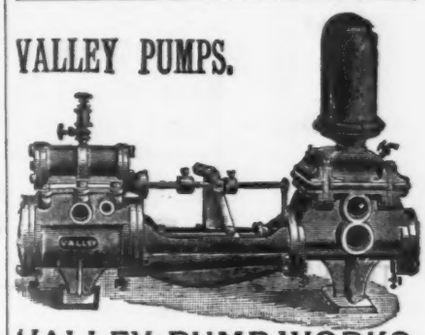


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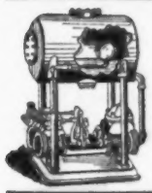


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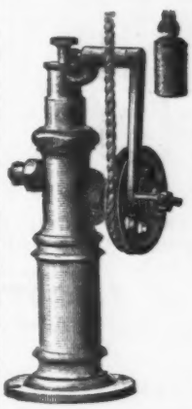
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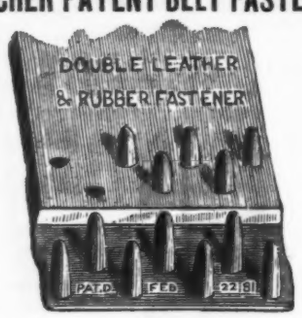
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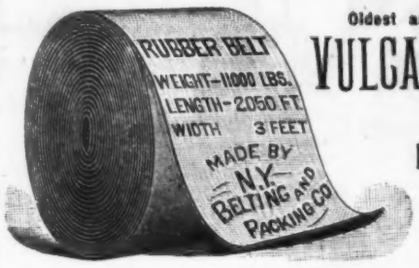
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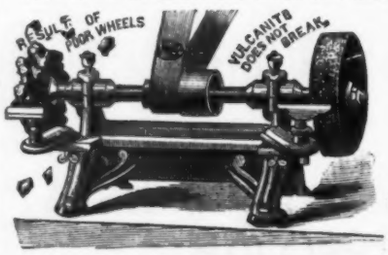
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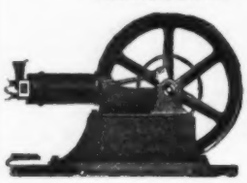
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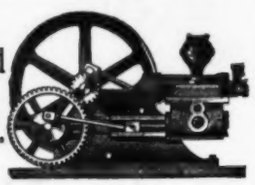


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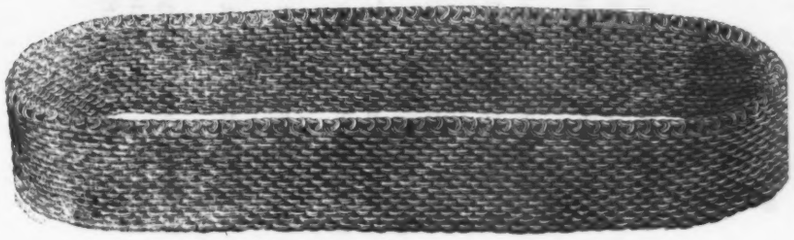
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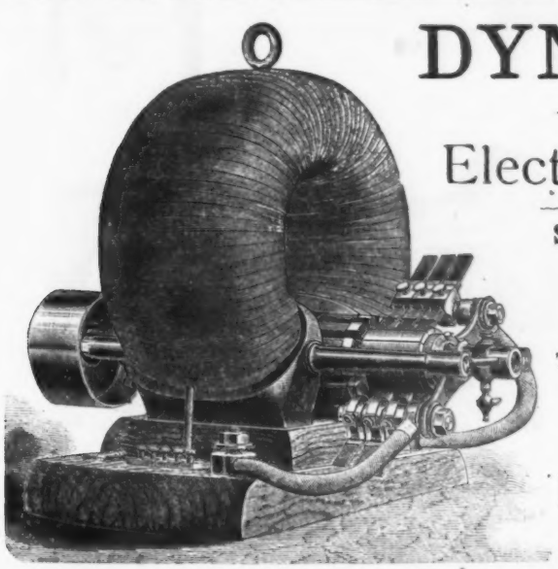
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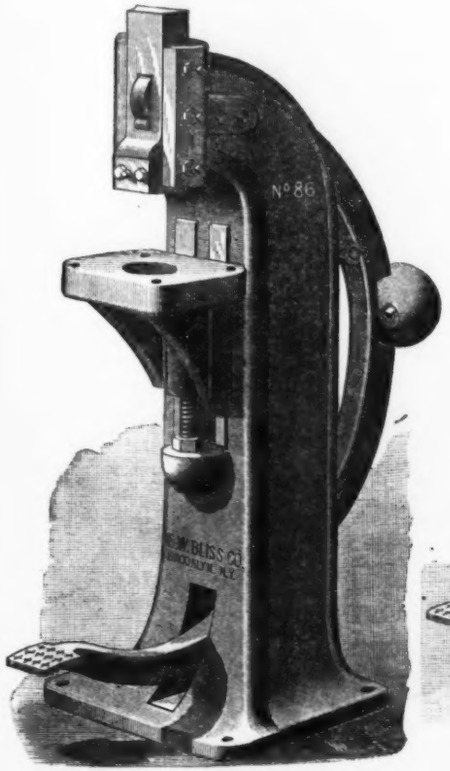
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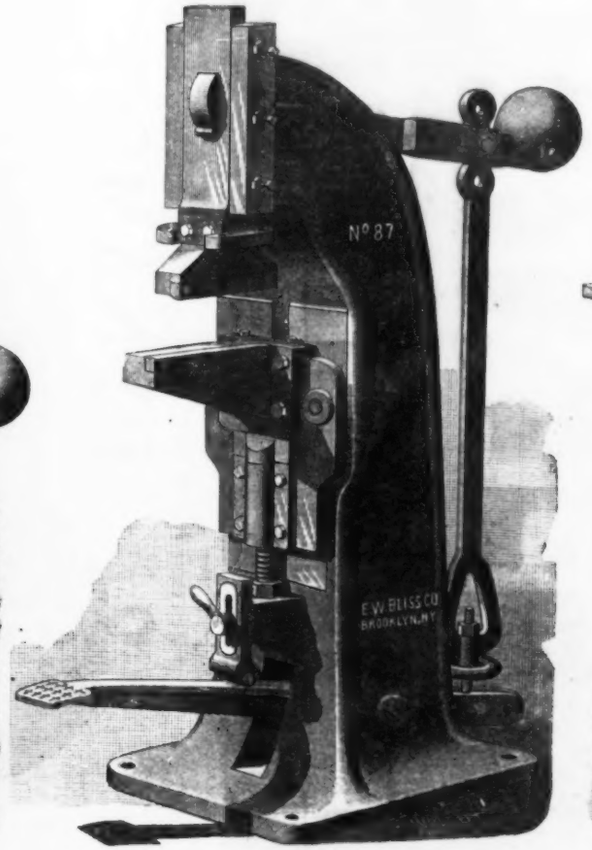
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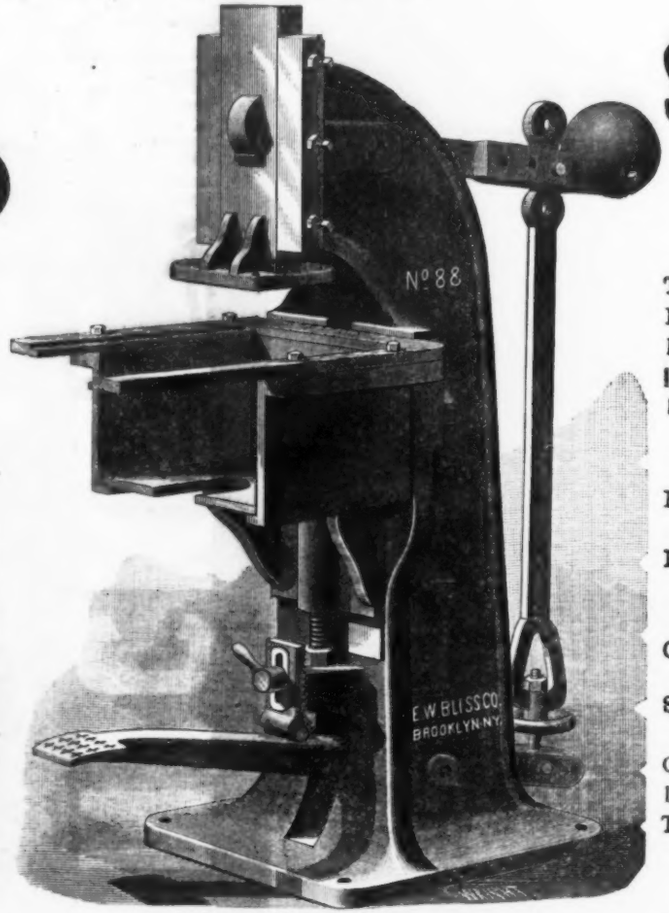
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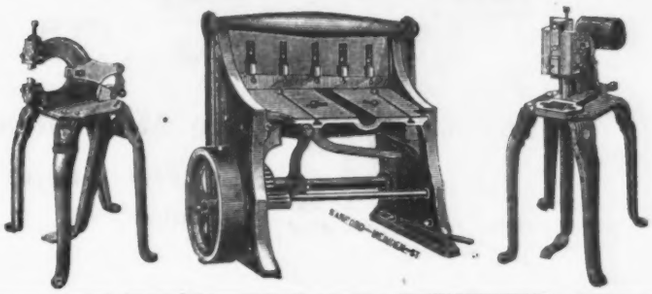
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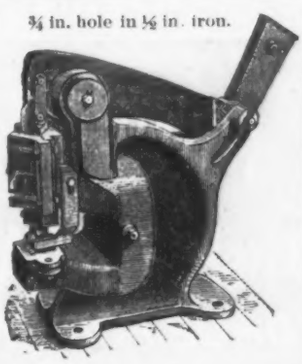
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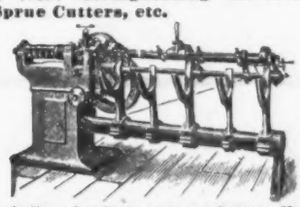


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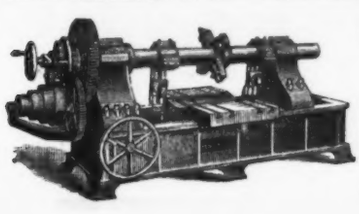


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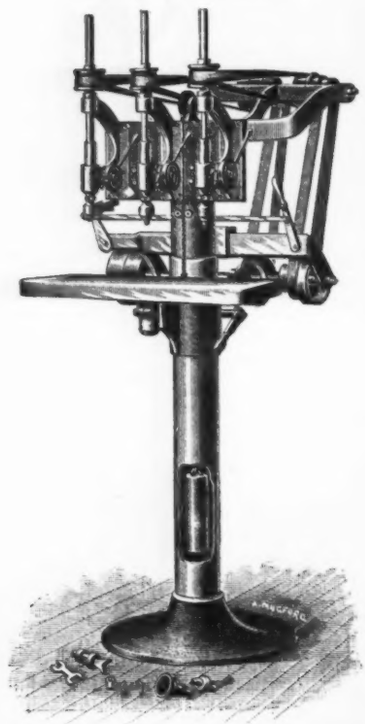
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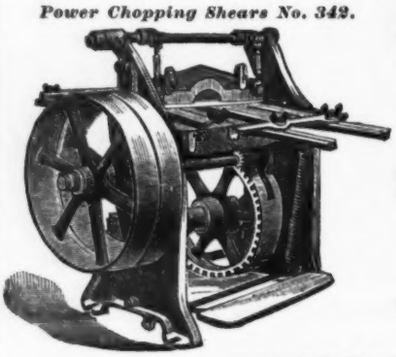
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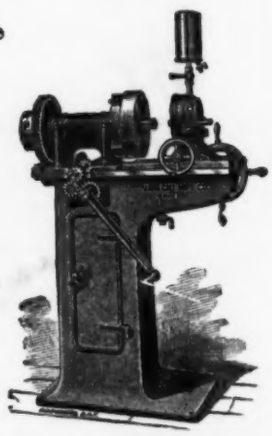
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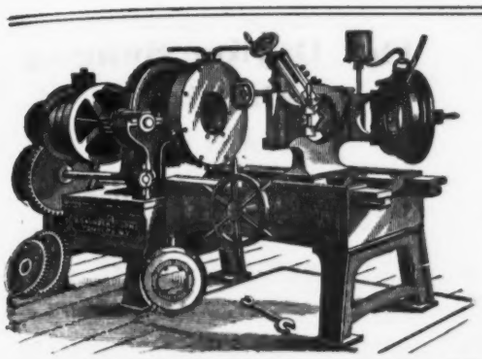
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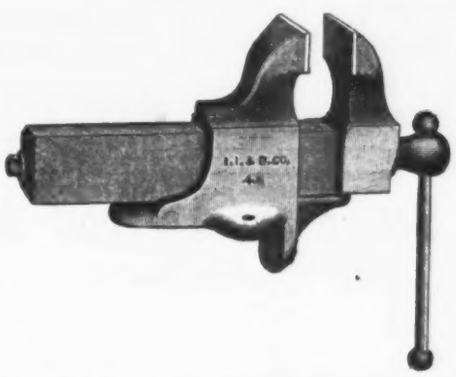
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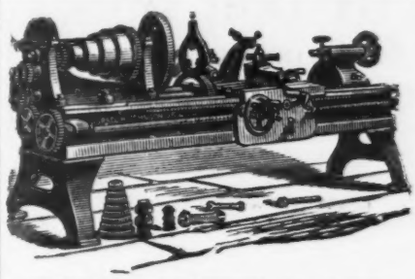
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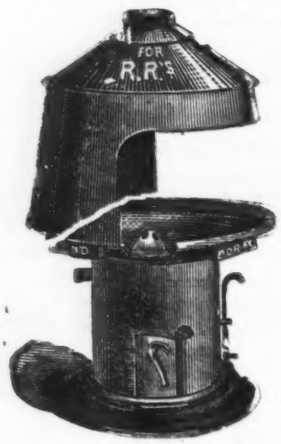
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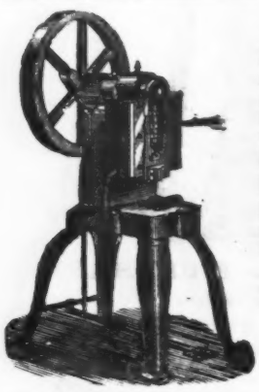
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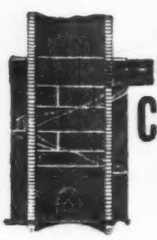
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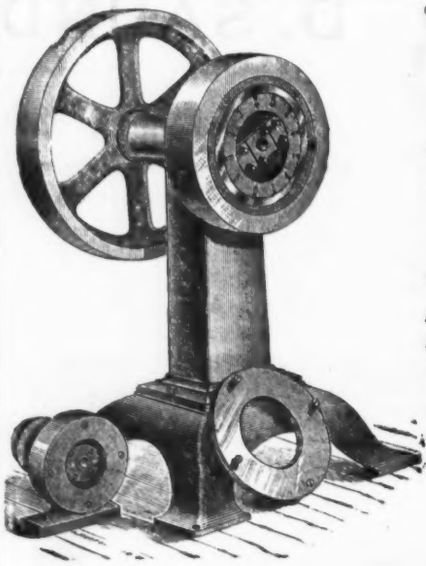
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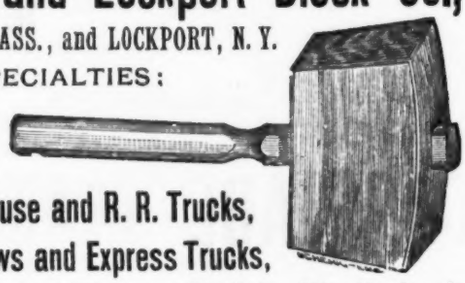
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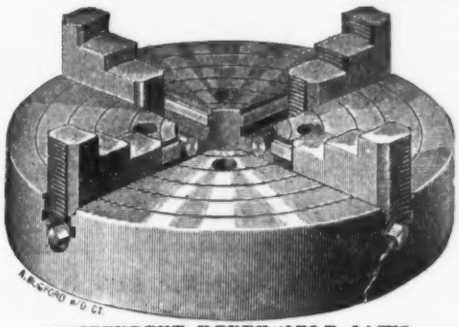


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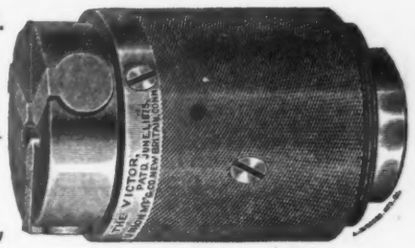
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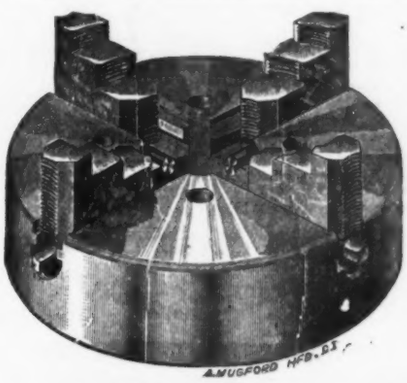
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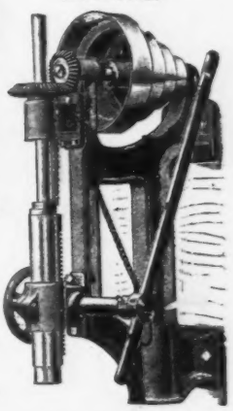
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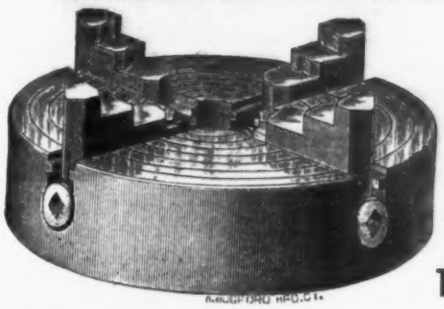
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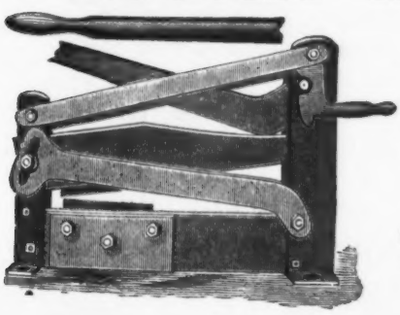
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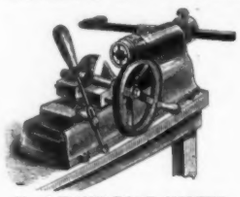
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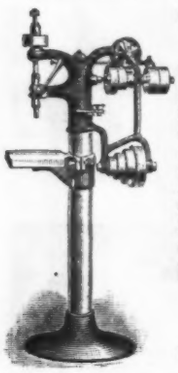
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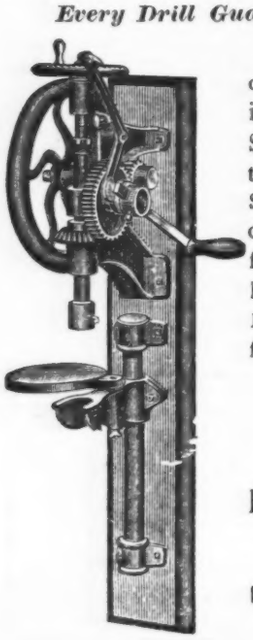
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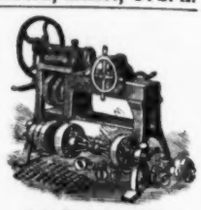


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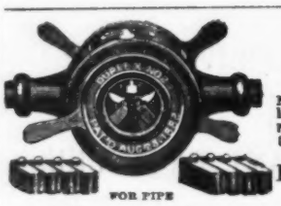
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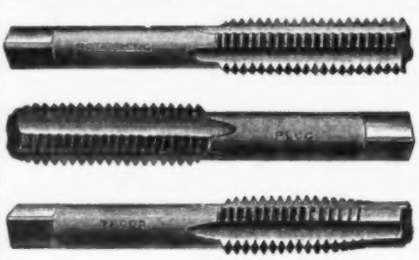
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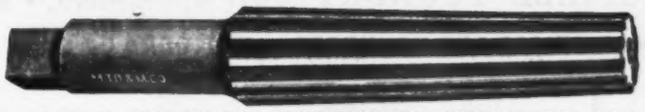
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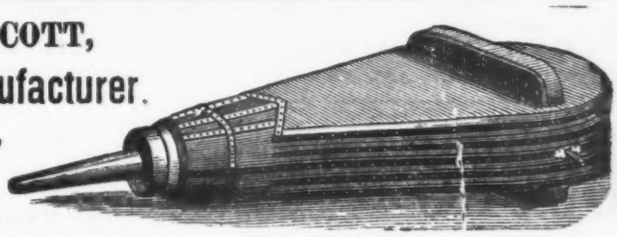
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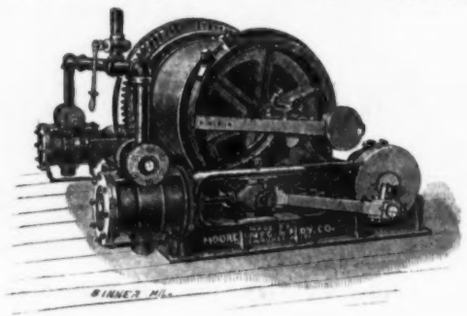
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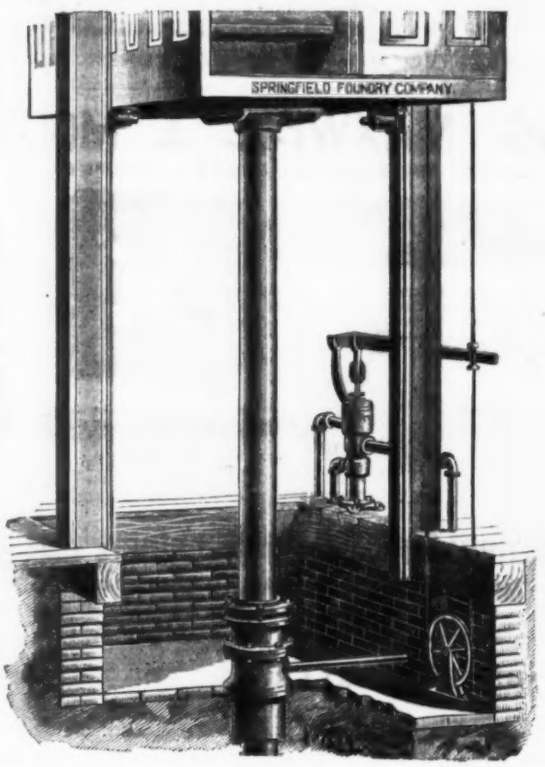


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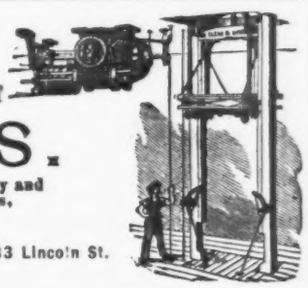
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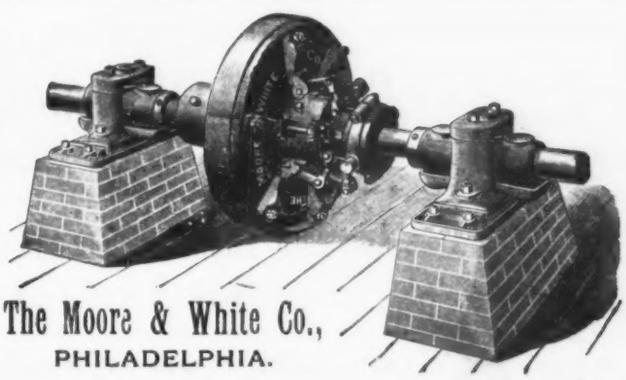
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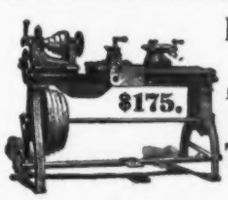
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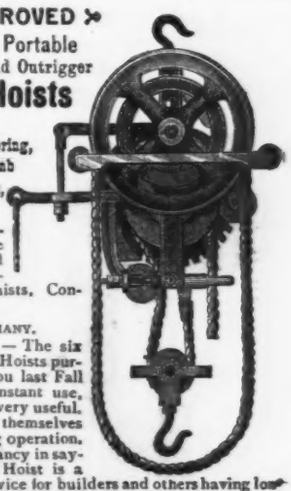
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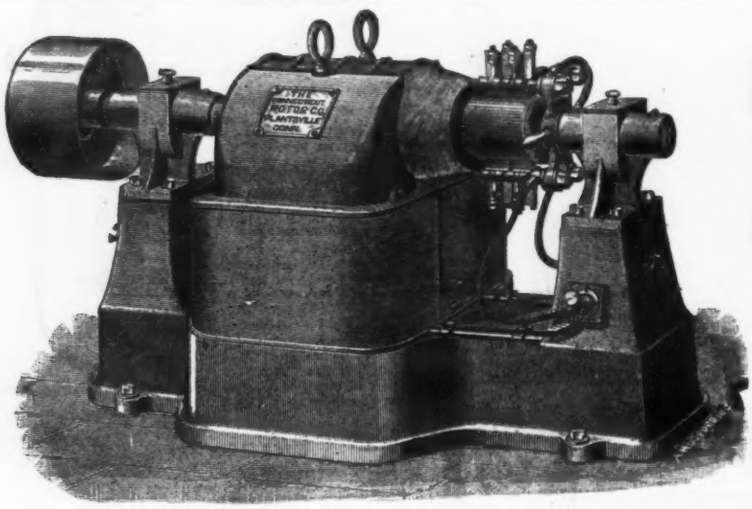
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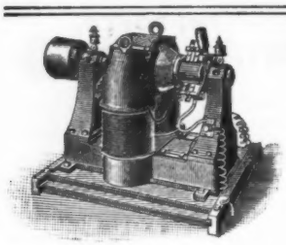
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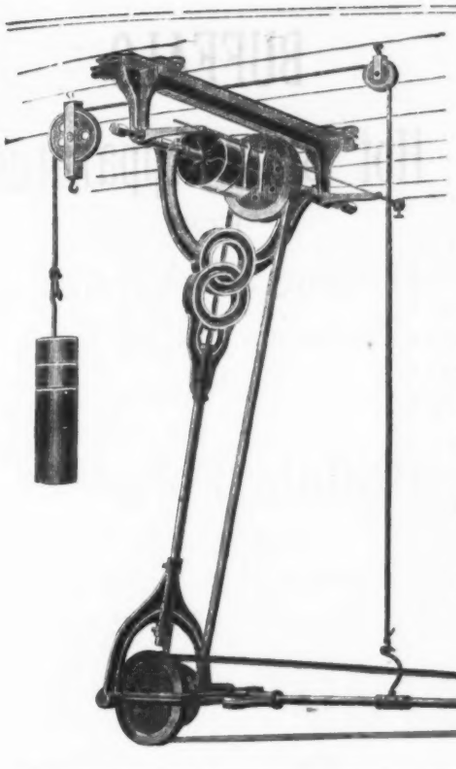
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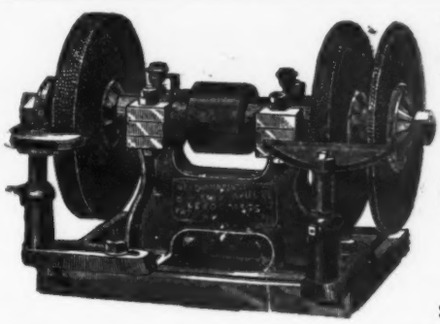
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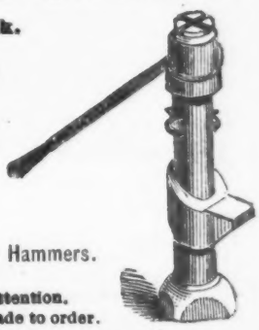
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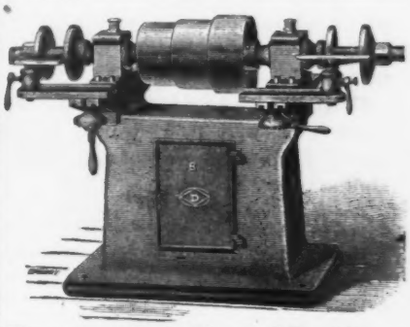
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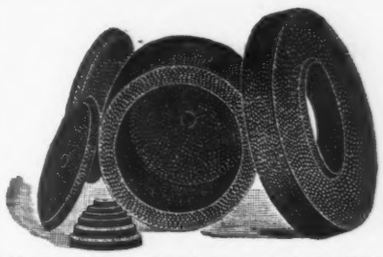
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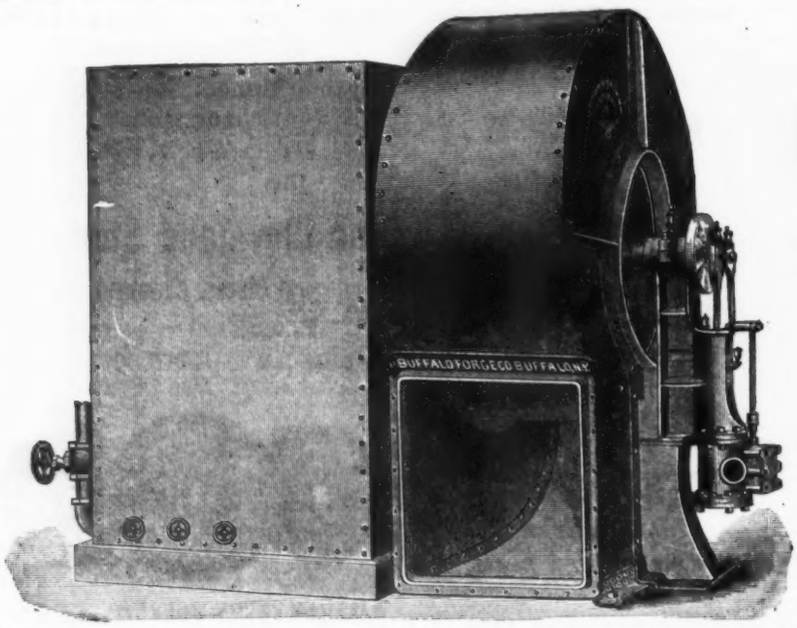


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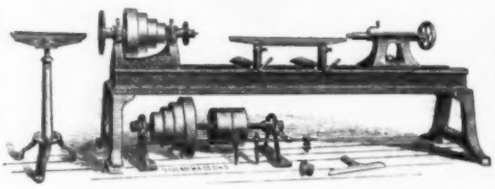


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1 Iron Planer, 16 in. x 16 in. x 3 ft.
1 Planer, 20 in. x 20 in. x 4 ft. and 22 in. x 22 in. x 5 ft.
1 " 24 in. x 24 in. x 5½ and 6 ft.
1 " 30 in. x 30 in. x 6 ft. 30 in. x 30 in. x 9 ft.
1 " 32 in. x 32 in. x 10 ft. 42 in. x 36 in. x 12 ft.
" 36 in. x 28 in. x 10 ft.
1 " 60 in. x 66 in. x 24 ft. with 1 head.
1 " 30 in. x 30 in. x 9 ft. with 1 head.
1 " 32 in. x 32 in. x 10 ft. with 2 heads.
1 " 42 in. x 42 in. x 12 ft. with 2 heads.
1 " 50 in. x 50 in. x 17 ft. with 1 head.
1 " 100 in. x 100 in. x 18 ft. with 2 heads.
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1 20 in. stroke Fitchburgh T. H. Shaper.
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One pair 26 x 28 in Blooming Mill Engines, complete.
Morgan Hydraulic Ladle Crane with Accumulator.
Two 12 to 15 ton steel ladles.
Two pair of Gordon Duplex Hydraulic Steam Pumps.
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One 12 x 20 in., one 9 x 16 in. and one 9 x 14 in. 3 foot guage saddle tank locomotive.
Hoisting and table Engines.
Rail, Bar, Sheet Clipping and Rotary Shears in stock.
Derricks, Cranes and Skull Breakers.
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1 24 in. x 24 in. x 4 ft. Planer.
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Send for prices for New Planers.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers
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1 11-ft. bed 19-in. Engine Lathe.
1 10 ft. bed 20-in. Engine Lathe.
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1 8 x 16 " " "
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1 Planer, 30 in. x 7 ft. Good order.
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Guaranteed to be well made.

Net cash price each, $400.

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All of the above are in first-class condition and good working order.

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1 Large Lincoln Pattern Milling Machine.
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1 Set 12 in. x 10 ft. " " "
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1 Set Cornish Rolls, 14 x 24.
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A number of small Turret Head Brass Working Lathes.
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New or second-hand Pipe Machine to cut and thread wrought-iron Standard Pipe from 6 in. to 14 in. Address

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2 Colt Compound Drop Presses.
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EXCELLENT OPPORTUNITY!!

FOR SALE.—One I. P. Morris Blowing Engine, 84 in. stroke, 42 in. steam cylinder, 90 in. blowing cylinder. In perfect order.
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Vertical Blowing Engine. 30 in. steam cylinder, 70 in. air cylinder (Tremaine Valve), 5 ft. stroke.
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Both have been used in operating a 70-ton charcoal furnace. Replaced in enlarging plant.
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Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address

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FOR SALE—Ingersoll Air Compressor, 14 in. x 24 in.; Air Receiver, 4 ft. x 12 ft.; Drills, 3 in.; Double Friction Hoisting Engine, cylinders 10 in.; Pumps, one Worthington, 12 x 6 x 10 (good as new); Boilers, Pipe, Tools, &c., &c.; all in first-class condition and to be sold. Address

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1 Pease Planer, to plane 24 in. wide, 22 in. high and 6 ft. long.
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One second-hand, Corliss Engine, Wetherill make, 100 H.-P., size 16 x 36, first-class running order. Can be delivered immediately.
One second-hand Corliss Engine, 26 x 48 inch.
One " " " 30 x 72 "
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Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

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In West Chelmsford, Mass., all the Real Estate and Machinery formerly owned by the Hiscox File Co.; the real estate consisting of about 7 acres of land, together with the buildings and water power, and the machinery, being such as was used by them in the manufacture of files, machine knives, sword blades and edge tools. There is also on the premises a good 75 horse-power Harris-Corliss engine and good boiler, also a large amount of shafting, belting and supplies. This property is situated about five miles from Lowell, and is very easy of access by railway, with excellent facilities. The entire property will be sold very cheap, either as a whole or in part, and will afford some party an excellent chance to enter into this business. For terms, &c., inquire of

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should visit and investigate the advantages now being offered by Pittsburg, Kas. It is going to be a great big mining, manufacturing and smelting city of **100,000** people in a few years, because of its cheap fuel, raw material, railway facilities and central location.

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PITTSBURG, KANSAS, offers exceptional advantages to capitalists, investors, manufacturers and all reputable business concerns. Property cheap now, but advancing daily. Investigate quick. Address for particulars, PITTSBURG TOWN CO., PITTSBURG, KANSAS.

Free Land. Gas (Fuel), fine R. R. Facilities

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No Snow. No Cyclone.

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THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make COLLECTIONS in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

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A thoroughly practical business man, who will start on a business trip through the South and Southwest about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address

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The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

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We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $8000; can be reduced to $3000. Satisfactory reasons given for selling. Address

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Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.

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$5000 stock of Hardware, Lumber and Stoves, with good business established in centre of Southern Illinois fruit belt.

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Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

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A clean stock of Hardware, House-furnishing Goods, Builders' Hardware, Stoves and Tinware; in a thriving town in Southern New York; only Hardware store in the place; excellent stove trade; business built up and in a healthy condition; established 10 years under present management. Total business this year about $30,000, with good profits; stock will invoice about $6000; good reasons for selling. A splendid opportunity for parties with push and ability. Write at once to

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The best machines for making chamfered and trimmed cold press nuts automatically; the only machine that will punch any thickness without injury to the tools from stretch of the iron. Foreign patents for sale.

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TRAVELING SALESMAN to represent a large manufacturing corporation who make Steam Pumps of every description, Brass and Iron goods for steam and water and general supplies; state age, salary wanted, where last employed; give reference and section of country best acquainted. Address "STEAM PUMPS," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

STEEL SALESMAN wanted to travel in New York, Connecticut and New Jersey for an old established house; one who has a large acquaintance with dealers and consumers in bar and sheet steel more particularly of the best grades. Address, with references, "FINE STEEL," Box 39, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOUNDRY FOREMAN WANTED to go west of Chicago; must have had considerable experience as foreman and be familiar with modern foundry practice. Address "M.B.," office of *The Iron Age*, 59 Dearborn St., Chicago.

AN EXPERIENCED SALESMAN, fully acquainted with Tinware and House Furnishing Goods, to travel in New York State; to a thorough, first-class man a liberal salary will be paid. Address "STAMPED WARE," office of *The Iron Age*, 66 and 68 Duane St., New York.

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TRAVELING SALESMAN wanted in every State, to sell the Smolley "T" Steel Fence Post as a side line, on commission; name territory covered; samples furnished and commission promptly paid. Address JOHN G. SMOLLEY, Connersville, Ind.

BY A PHILADELPHIA Tin Plate and Metal House, on or after January 1, 1891, a Salesman acquainted with the Tin Plate and Metal Trade throughout Wisconsin and the Northwest, to make his headquarters at Chicago or Milwaukee. Address, with reference, "TIN PLATE," office of *The Iron Age*, 220 South Fourth St., Philadelphia.

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GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

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BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

FIRST-CLASS STOVE and Hardware Salesmen to take one good selling specialty on a commission. Address W. H. PECKHAM, Minneapolis, Minn.

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A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, pipe mill machinery, engines and boilers, roof construction, sugar machinery, &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN thoroughly familiar practically with the manufacture of malleable iron castings; also the erection of plant in all its details; and of strictly temperate habits, desires a position as Superintendent or Manager of works with some good firm; been handling men 12 years. Address "DANE," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as Superintendent of Steel Plant; have had 6 years' experience in Beam and Plate Mills at Homestead as Roller and Superintendent of Department; have worked both Bessemer and Open-Hearth steel for four years, also Basic Open-Hearth for 2½ years. Address "BEAM" office of *The Iron Age*, 66 and 68 Duane St., New York.

THE POSITION of Superintendent or Founderman of a Blast Furnace (Coke) by a practical Furnaceman; good references given. Address "F," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN who has sold Hardware in the West for past 15 years wishes a position as traveling salesman in the extreme Northwest for some large manufacturer. Address "EXTREME," office of *The Iron Age*, 66 and 68 Duane St., New York.

A STEEL AND IRON Salesman of 10 years' experience desires to make an immediate change; has good trade and extended acquaintance with dealers and consumers, large and small, in New England, New York, New Jersey and Eastern Pennsylvania; best of references. Address "S. & I. SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

AS SALESMAN, by a party who has worked in Ohio Trade for five years; wishes to change his line; would prefer Cutlery from American manufacturers, Hardware Specialties or similiar line; good references; state salary paid and other particulars. Address "A SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY FOUNDRY FOREMAN accustomed to general castings, practical Green Loam or Dry Sand Molder, well versed in Cupola Practice and Iron mixtures; 22 years' experience; at liberty December 1. Address "CUPOLA," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

A YOUNG MAN of character, ability, good address, who is at present employed as accountant for a large Eastern Manufacturing Co., will soon be open for an engagement of responsibility and trust; is thoroughly familiar with the science of accounts and quite familiar with manufacturing business, but would prefer a more active occupation than that of accountant. Address "TRUSTY," office of *The Iron Age*, 66 and 68 Duane St., New York.

A BRICKLAYER desires a situation as Foreman in a Rolling Mill; has had several years' experience in building and rebuilding regenerative and open-hearth furnaces and all other repairs, and also understands the nature and making of artificial gas; references can be had where last employed. Address C. WEBSTER, Eighth Ave., Beaver Falls, Pa.

AS SUPERINTENDENT of Blast Furnace, by a practical man of experience in operating and burdening furnaces, including all chemical work; can take hold in any position; best of references. Address "HOT BLAST," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

OPEN to engagement for 1891, a gentleman aged 48; has had twenty years' successful business experience, largely as commercial traveler, mostly to wholesale trade; also experienced in Insurance, Real Estate, Conveyancing Titles, &c.; A1 reference as to character and ability; only positions paying $2500 to $3000 will be considered. Address "STRICTLY BUSINESS," Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

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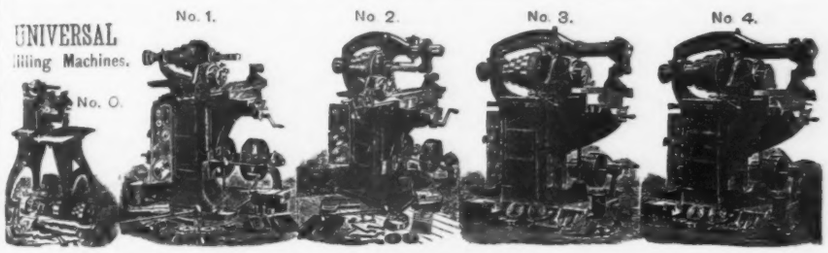
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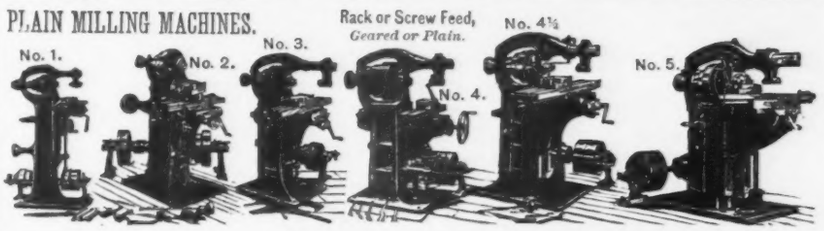
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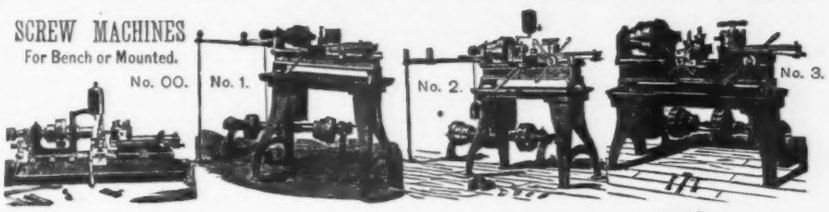
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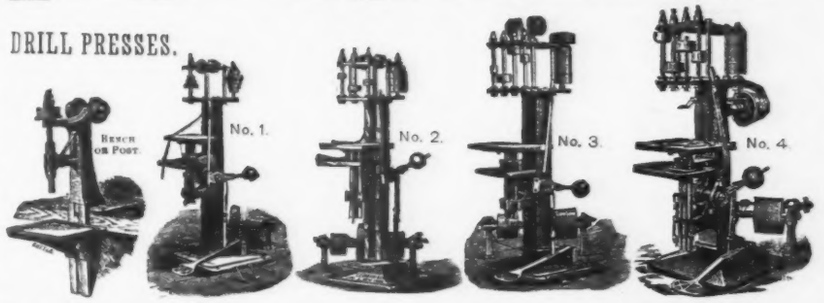
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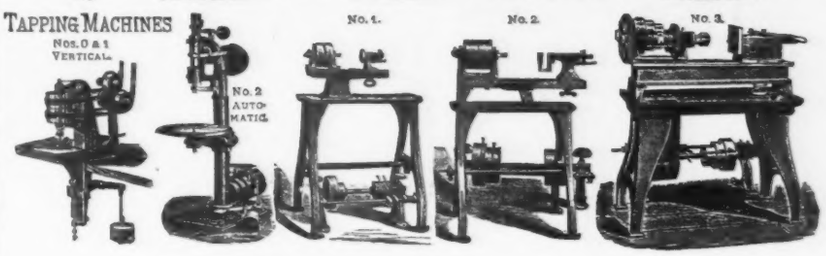
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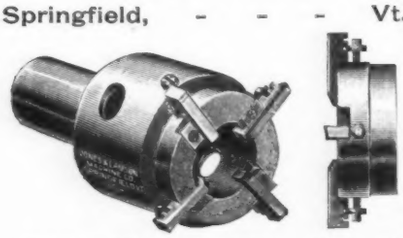
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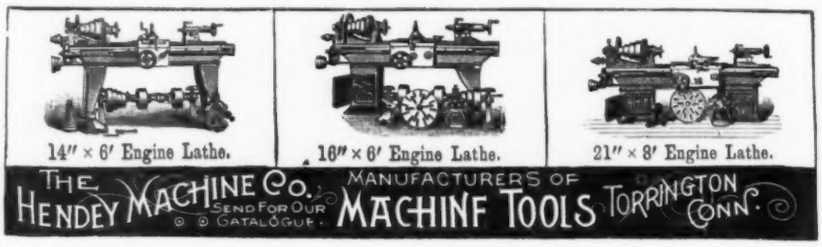
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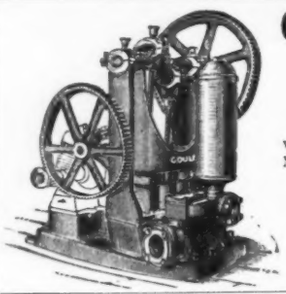
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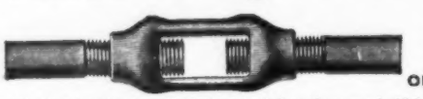
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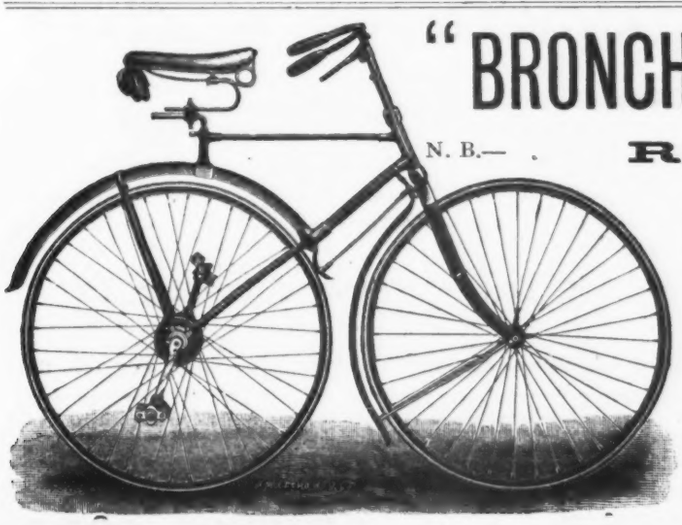
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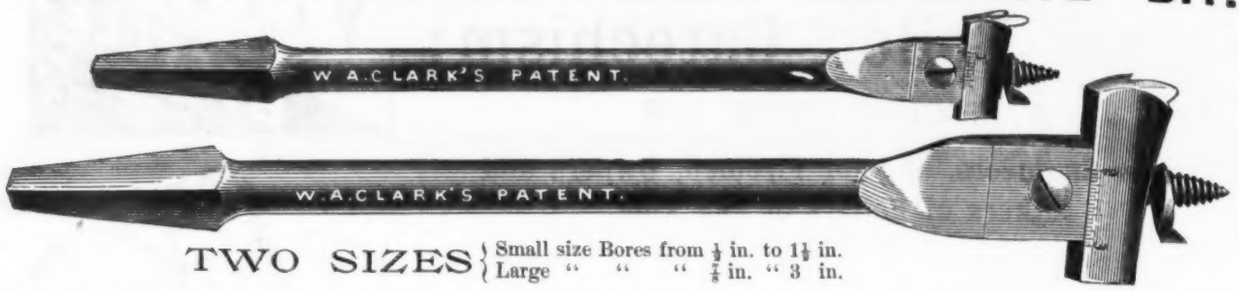
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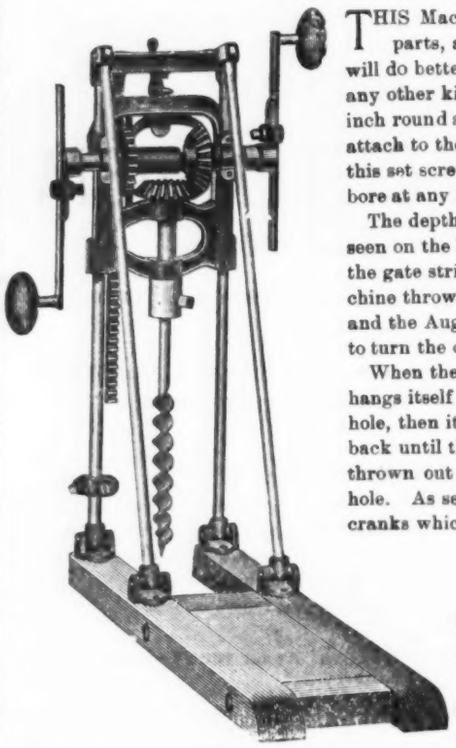
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The depth of hole to be bored is fixed by a stop, as seen on the left hand upright rod in the cut. When the gate strikes this stop a latch is lifted and the machine throws itself into gear by the use of a spring, and the Auger is lifted out of the hole by continuing to turn the crank in the same direction.

When the Auger is drawn from the hole the frame hangs itself up until the machine is moved to the next hole, then it is dropped down by turning the crank back until the Auger strikes the wood, when it is thrown out of gear and proceeds to bore the next hole. As seen in the cut, the machine has adjustable cranks which fully regulate its speed and power.

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Machine, without Augers, - $7.50

Augers in sets, 18, 23, 41 quarters, $3.00. $3.75. $6.75.

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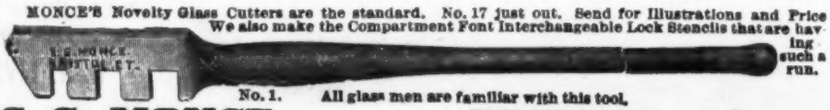
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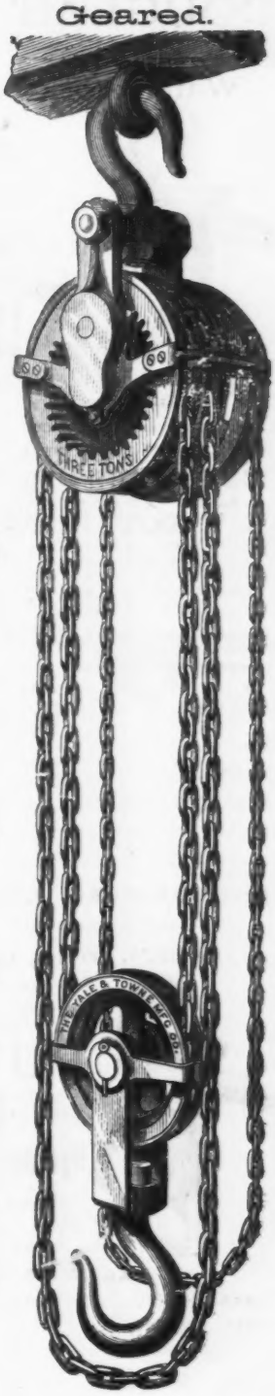
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DIFFERENTIAL PULLEY BLOCKS

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Geared.



SIMPLICITY,
CONVENIENCE
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GOOD EFFICIENCY.

DIRECT BLOCKS
of capacity from $\frac{1}{8}$ ton to 3 tons.

GEARED BLOCKS
from 1 ton to 10 tons.

These Pulley Blocks can be used in any situation, will sustain the load automatically at any point, and possess the greatest simplicity and portability.

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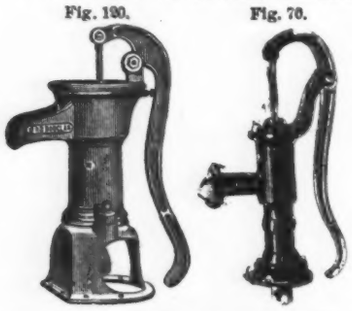
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Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 190. Fig. 70.



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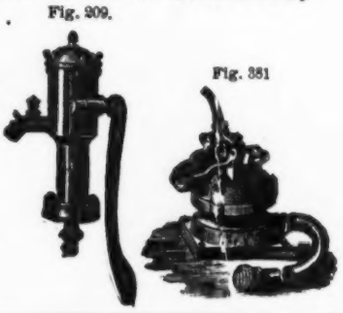
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These pumps are simple, durable and low priced.

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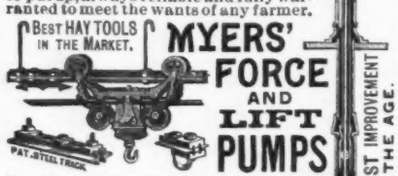
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Fig. 209. Fig. 381



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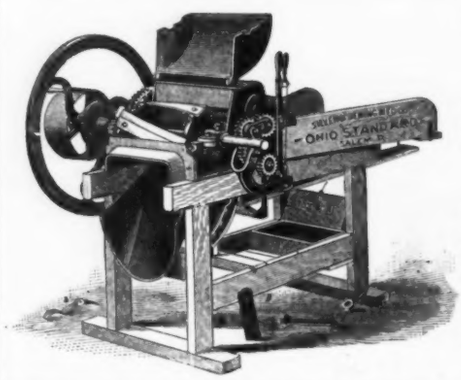
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Wind Mill Pumps, Hand and Power Rotary Pumps,

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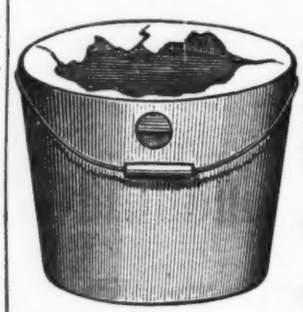


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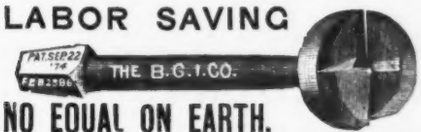


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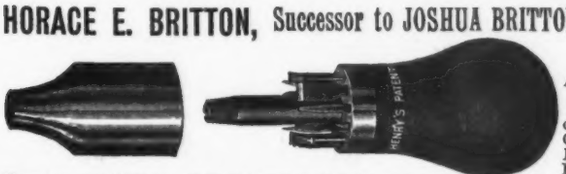
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ATKIN'S PAT. EXCELSIOR SAW TOOLS

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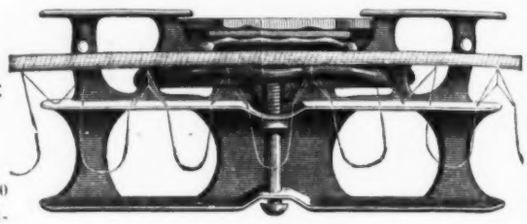
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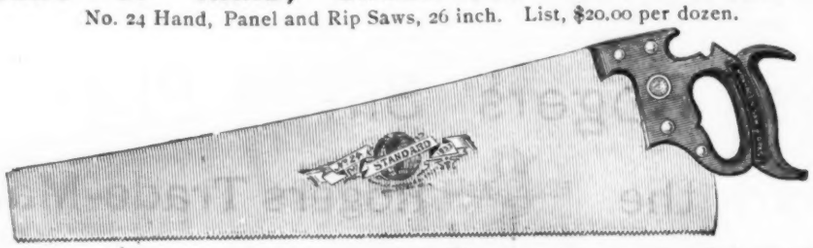
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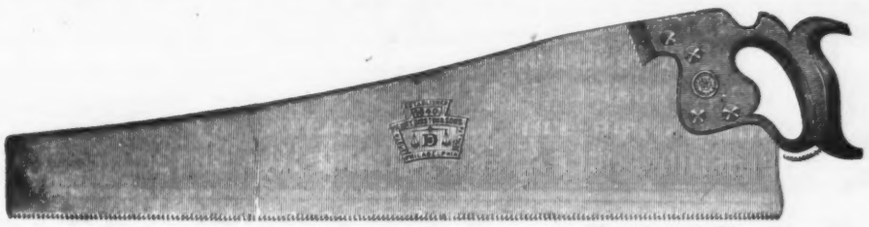
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"THE SAW;" HOW TO CHOOSE IT, AND HOW TO KEEP IN ORDER, Sent Free on Receipt of Name and Post Office Address.

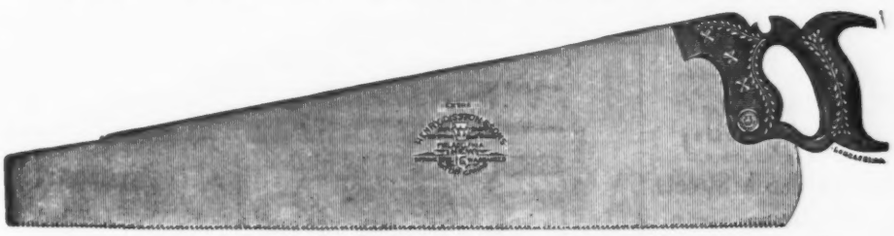
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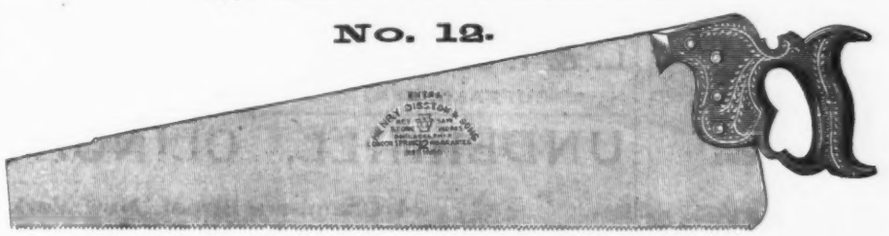
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AN EXTRA FINE SAW IN EVERY RESPECT.

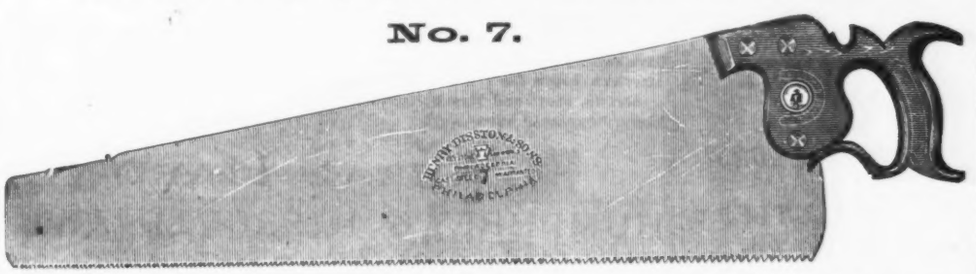
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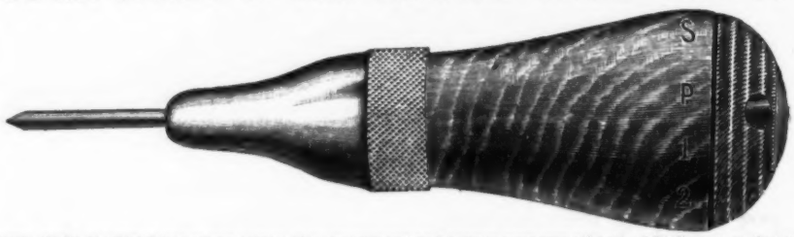
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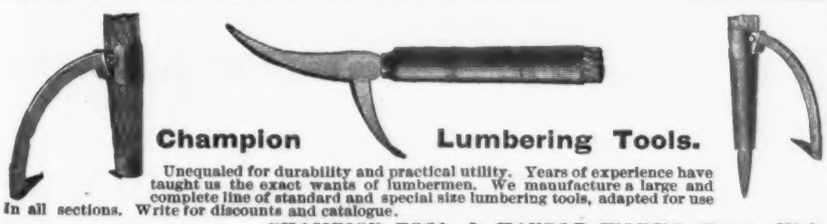
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Will not get hot.

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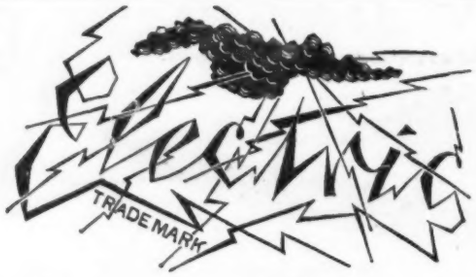
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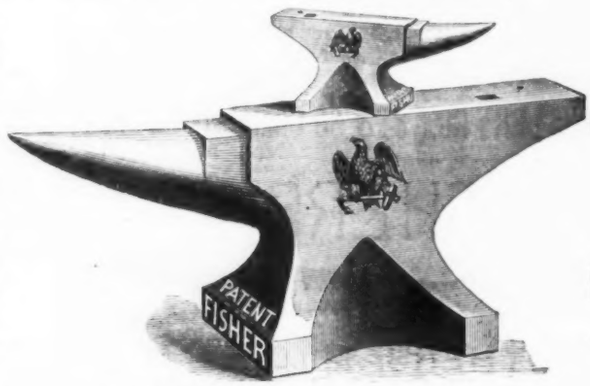
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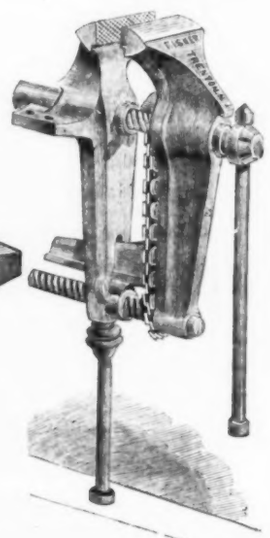
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Shot, - $1.60 per bag.
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Less 5c a bag for cash on receipt of bill.

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A saving of 15 to 20% (if properly used) over any other compositions in the market.

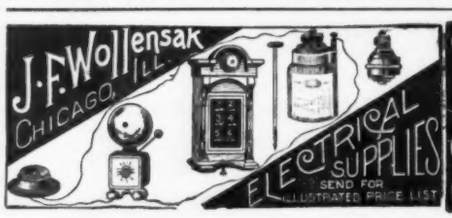
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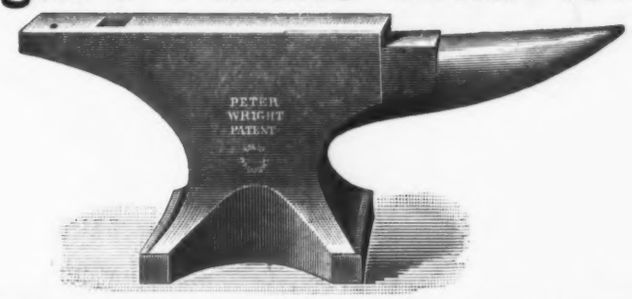




Peter Wright's Patent Solid Wrought Anvil

PETER WRIGHT PATENT SOLID WROUGHT

Fac-Simile of Trade-Mark.



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By Royal Letters Patent.
V. R.
PETER WRIGHT'S
SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE BICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

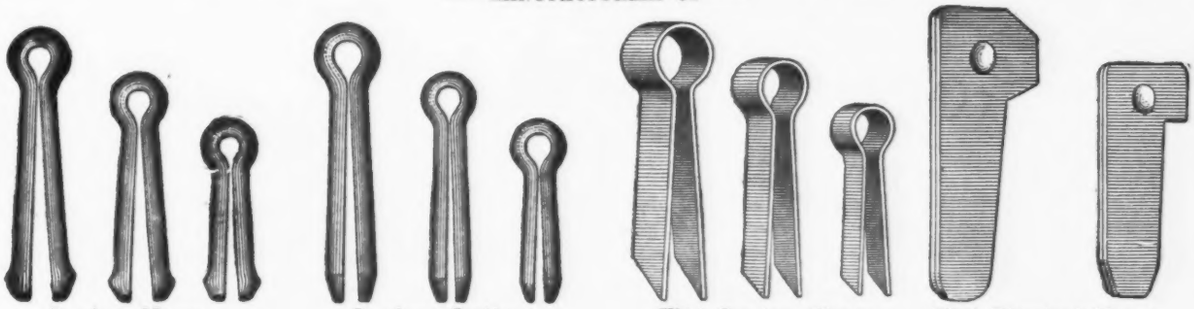
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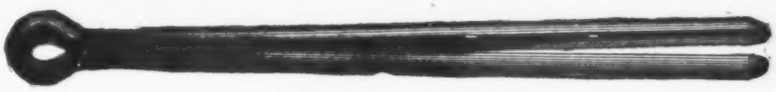
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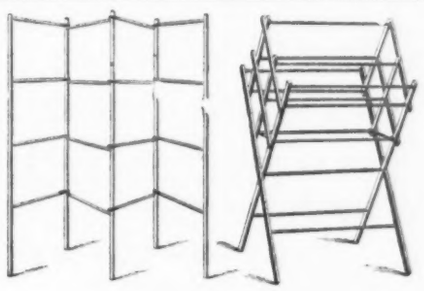
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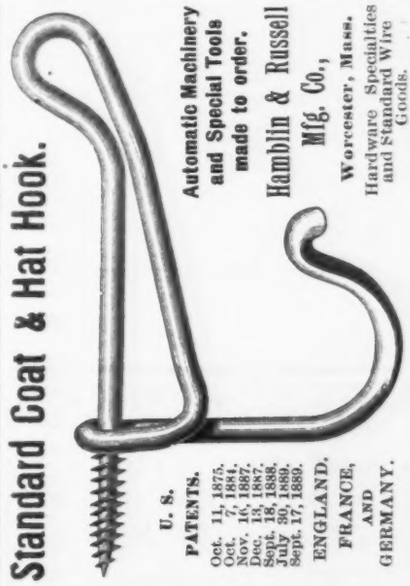
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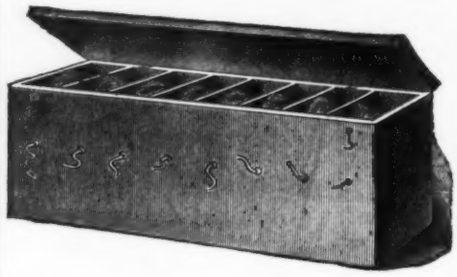


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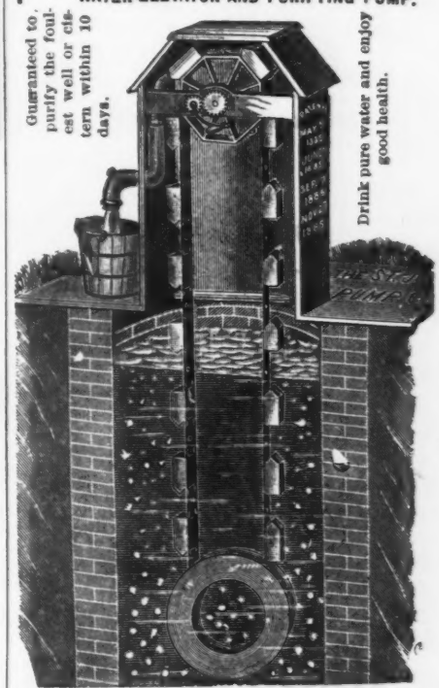
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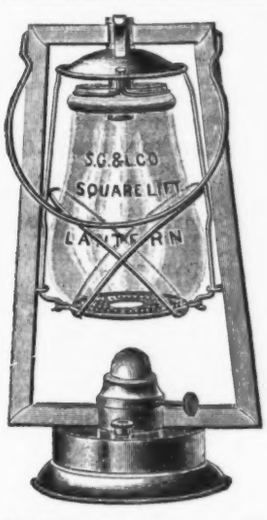
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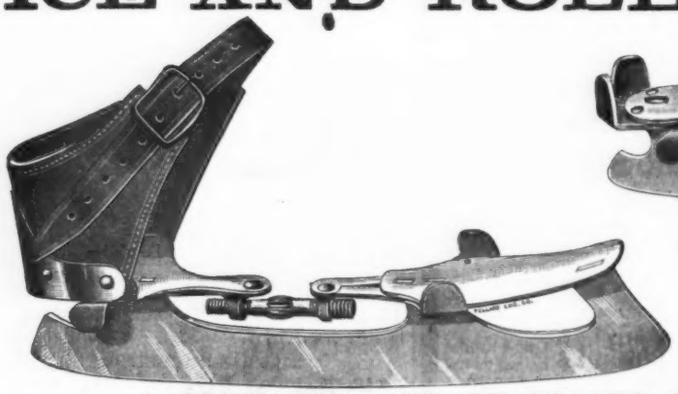
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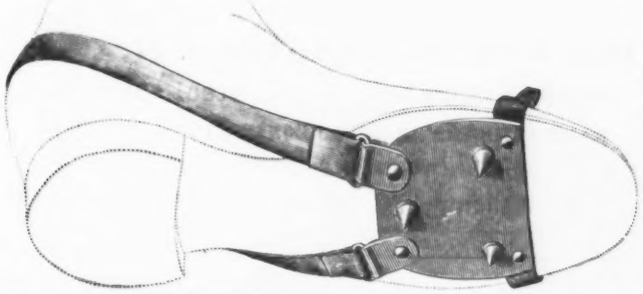
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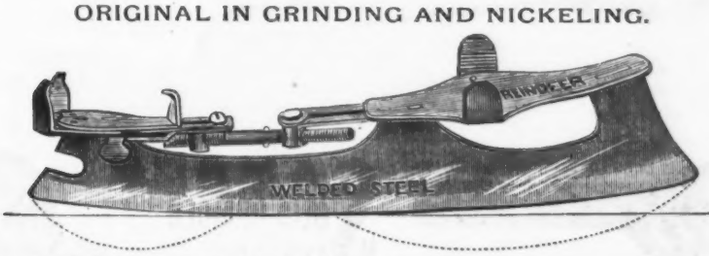


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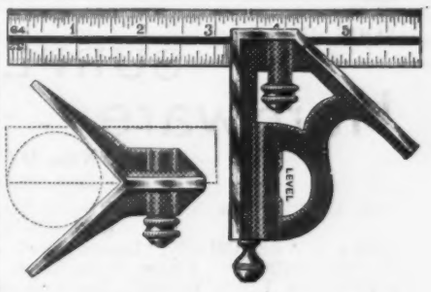
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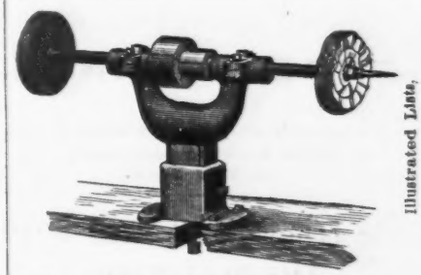
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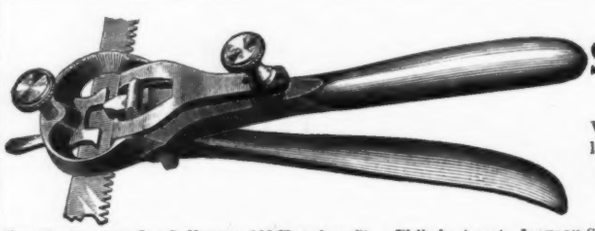
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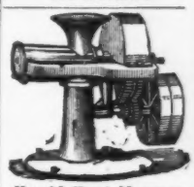
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In the department of BUSINESS LITERATURE the Milling Papers are analyzed and reviewed as to their contents, both advertising and editorial.

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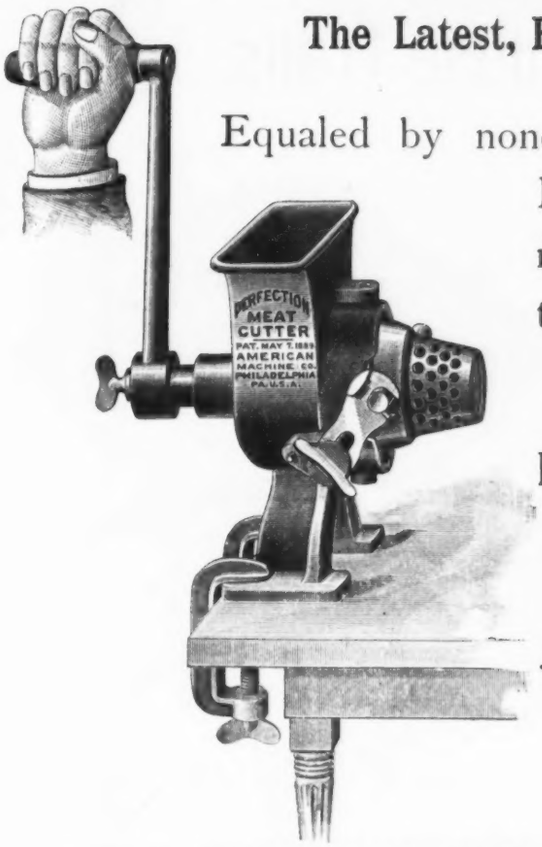
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Equaled by none for family use. Cuts instead of Mashes. Requires no Repairs Cannot get dull or out of order. Simple to use. Easy to clean.

SIZES AND LIST PRICES.

No. 1, $2.00. No. 2, $2.75. No. 3, $4.00

Liberal discount to the trade, and descriptive circulars on application to

American Machine Co.,

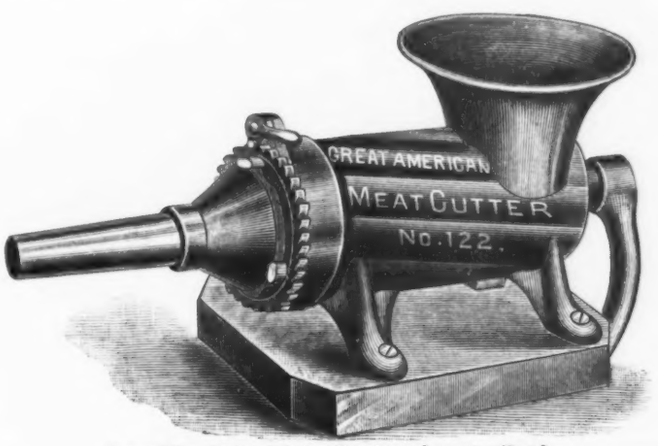
Manufacturers of Hardware Specialties,

Lehigh Ave. and American St., Philadelphia, Pa.

—OR TO—

JOHN H. GRAHAM & CO., Mnfrs. Agents, 113 Chambers Street, New York.

WM. J. LLOYD MANUFACTURING CO., PHILADELPHIA, PA.



Cut of No. 122 with Stuffer Attachment affixed.

GREAT AMERICAN MEAT CUTTER AND STUFFER ATTACHMENT.

PATENT REVERSIBLE KNIFE.

Best in the Market.

No. 112, with Clamp, will cut	2	lbs.	per minute,	each,	$2.00
" 116, " " "	2	"	"	"	2.75
" 118, " " "	3	"	"	"	3.00
" 120,	3	"	"	"	2.50
" 122,	4	"	"	"	4.00
" 124, 40-inch Fly-Wheel,	300	"	per hour,	each,	25.00
" 126, to screw to table,	200	"	"	"	8.00
" 128, 40-inch Fly-Wheel,	350	"	"	"	30.00
" 130, Geared, ⅓ power,	250	"	"	"	20.00
" 132, 40-inch Fly-Wheel,	400	"	"	"	35.00
" 134, Power,	750	"	"	"	35.00
" 136, "	1000	"	"	"	50.00

WRITE FOR CATALOGUE.

METAL-EDGE BOXES.

USE NO OTHERS.



MOSES NEWTON, Pres. HOLYOKE, MASS. BENJ. WOLF, Treas. PHILADELPHIA.

PAID UP CAPITAL, $700,000.

NATIONAL METAL-EDGE BOX CO.,

MANUFACTURERS OF

PATENTED PAPER BOX MACHINERY,

401 to 415 APPLETREE ST. PHILADELPHIA, PA.

Every manufacturer using boxes is interested in this box. We shall be pleased to furnish sample boxes, catalogue of machinery and all information relative to the manufacture of boxes under our patent system.



COMMON MOUSE TRAPS
BEST FOR USE!

Ripley Mfg. Co., Unionville, Conn



Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks. Magnetic Tack Hammers, Mallets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side 2 ft. Lap Board.

EDWARD S. HOTCHKISS.

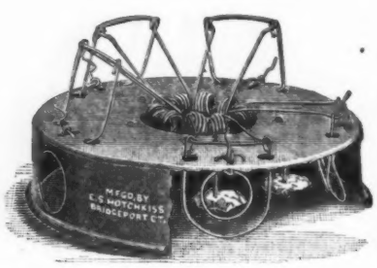
BRIDGEPORT, CONN.

Manufacturer of

HARDWARE.

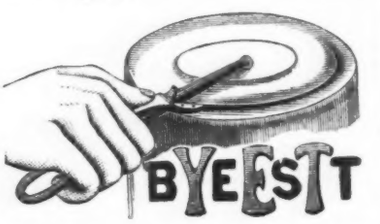
Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches, Horse and Toilet Clippers, Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016





CAN OPENER.

Mr. Hardwareman:

This Can Opener has merit at small cost. We are going to let the people know it by advertising it in home papers. They will soon be asking you for "one of those Best Yet Can Openers." Will you be prepared? Sample dozen from any N. Y. House, $1.25. Sample by mail, 20c.

HASBROUCK ALLIGER,

125 Chambers St., New York.



The F. F. ADAMS CO.,

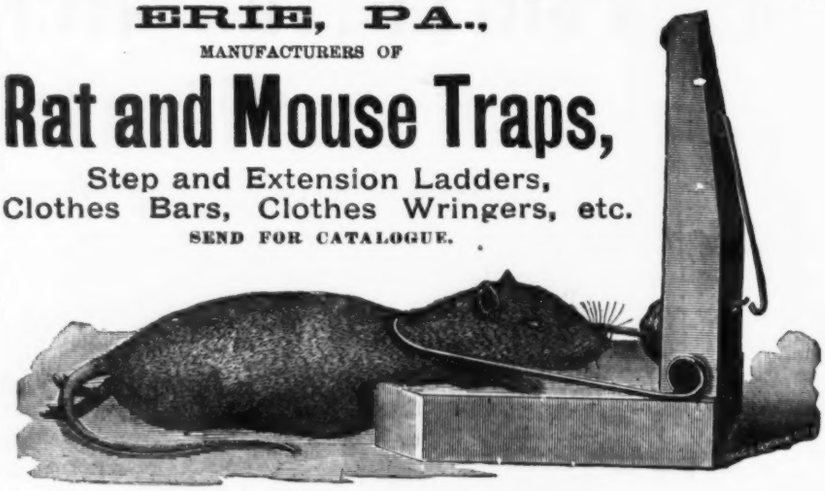
ERIE, PA.,

MANUFACTURERS OF

Rat and Mouse Traps,

Step and Extension Ladders,
Clothes Bars, Clothes Wringers, etc.

SEND FOR CATALOGUE.





WHEELER PATENT CAN OPENER COMPANY.

Surpasses all other instruments for opening cans, irrespective of shape or size.
They are well recommended by those who have them in use. It is the only can opener that will cut off the top of paint pails. There are hundreds in use for this purpose.
It cuts stove pipe, tin pipe, &c., to perfection. The blade is made of the best cutlery steel, and the spring is of the most reliable make. For sale by all wholesale hardware dealers. Samples will be forwarded to any address on receipt of 50c. Address **Wheeler Patent Can Opener Co.,** 102 South Main St., St. Louis, Mo.

LOOK AT THIS!

THE "ACME" CAN OPENER.

SEE HOW IT'S DONE?



Simplest thing in the world. Yes, any shaped can. Cuts close to the edge. Nothing to get out of order. Blade is steel, tempered. Lasts a lifetime. "Best one yet" they all say.

Goodell Co., - Antrim, N. H.

SOLE MANUFACTURERS.

REMEMBER NOV. 27th.

Sensible girls and careful wives always want the best and handiest of the following articles: TOWEL ROLLERS, HAT and COAT RACKS, LEMON SQUEEZERS, SLAW and KRAUT KUTTERS, VEGETABLE KUTTERS, BARREL TRUCKS, KNIFE TRAYS, POTATO MASHERS, STEP LADDER and CHAIR (in one) that are made well. We make 'em and want about 5000 dealers to push their sale; that is, inform their customers about the goods. Doing so will earn every dealer a good profit. We also have in stock MONEY DRAWERS, STOVE TRUCKS, SAW BUCKS, the first two of which you can use yourself and the last mentioned sell. If we haven't hinted at what you need, write us.

TUCKER & DORSEY MFG. CO.,

INDIANAPOLIS, IND.

Wrought Steel Hollow Ware.



"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a **guarantee** that they cannot **break, bend or warp.** An important feature also is that they are made **without rivets,** and **cannot leak** or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

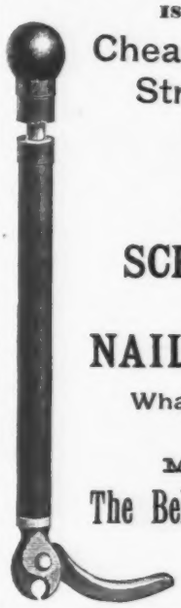
The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.

Can't Hurt the Hand

IS THE



Cheapest,
Strongest,
Quickest,
Best.

WHAT?

SCRANTON'S

IMPROVED

NAIL PULLER.

What more do you want?

MADE BY

The Belden Machine Co.,

New Haven, Ct.

S. A. HAINES CO., - Selling Agents,

90 Chambers St., New York.



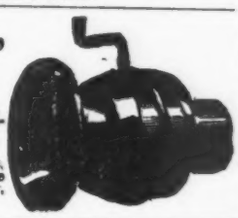
W. R. OSTRANDER & CO.,

195 and 197 FULTON ST., NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N.Y.

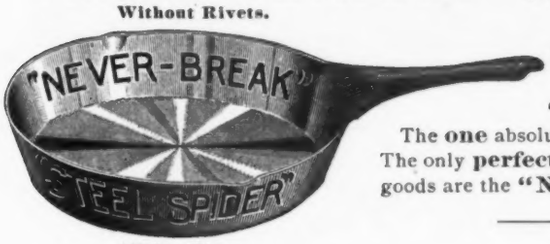


Builders' Hardware. A manual for Architects, Builders and Housefurnishers. By CLARENCE H. BLACKWELL. Illustrated. Cloth.....$6.00

For Sale by DAVID WILLIAMS, 66 and 68 Duane St., N. Y

"NEVER-BREAK" COLD HANDLE STEEL SPIDERS "NEVER-BREAK"

Without Rivets.



All One Piece.

The only **One Piece** spider with cold handle is the **"Never-Break."**

The **one** absolutely **clean** handle. The only **perfectly** polished **steel** goods are the **"Never-Break."**

Riveted Handle.



Only Two Pieces.

Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

A FULL ASSORTMENT OF WROUGHT STEEL HOLLOW WARE.

Manufactured only by **THE BRONSON SUPPLY CO., Cleveland, Ohio.** N. Y. Office, 51 Cliff St.



THE SWIFT MILL.

ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.



Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.



The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

Manufactured by LANE BROS., Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers Street NEW YORK.

DON'T BUY A NEW LOCK, JUST BUY A DIFFERENT KEY.



A CHANGEABLE KEY Self-Setting Combination LOCK. ABSOLUTE SECURITY.

MANUFACTURED BY THE UNIVERSAL Lock Co. OF NEW YORK.

This lock differs from all others in the fact that it will set itself to any one of 4013 different keys with which the user may choose to lock it. Only the key used in locking will unlock it.

The advantage will naturally become apparent when for any reason whatever the user wishes to change the means of securing his premises, he need only buy a new key. Obviously as many different locks for securing the premises will be available as there are keys in the possession of the holder.

PRICE LIST.

No. 1 (with Chain).....	per dozen,	$24.00
" 1.....	"	21.00
" 2.....	"	18.00
" 3.....	"	15.00

Extra Keys, 10 cents each.

NOTE.—Keys numbered from 1 to 4013 inclusively.

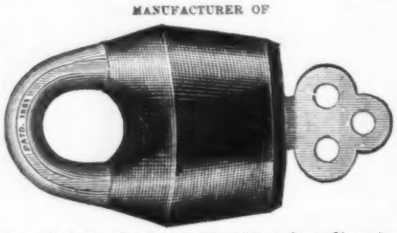
—SALES DEPOTS:—

John H. Graham & Co., - - 113 Chambers St., New York.
C. H. Gurney Company, - 247-249 Lake St., Chicago, Ill.

KEYSTONE LOCK WORKS,

E. T. FRAIM, Lancaster, Pa., U. S. A.

MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS**. 44 different grades and sizes.

Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

SURPLESS, DUNN & ALDER,

General Agents, 97 Chambers St., New York.

ATTENTION.

CUSTOM HOUSE, PORTLAND, MAINE, July 13, 1890.

AMES SWORD CO., Chicopee, Mass.

GENTLEMEN: I am glad to learn that your locks are to be adopted by the Treasury Department for the bonded warehouses. The samples from your works sent here last fall were thoroughly tested during the winter and proved satisfactory.

Your obedient servant,

(Signed) CHAS. W. ROBERTS, Supt. of Warehouses.

PATENT PERFECTION PADLOCK,

MANUFACTURED BY

AMES SWORD CO., - Chicopee, Mass., U. S. A.

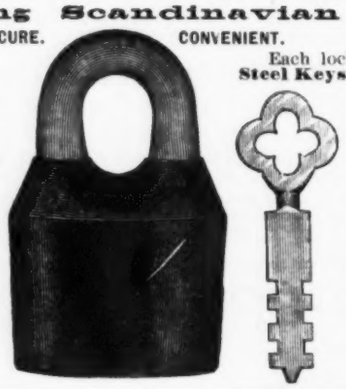
Self-Locking Scandinavian Padlocks.

NEW LINE. SECURE. CONVENIENT. DURABLE

In compliance with popular demands for a lower priced line of padlocks to work on our self-locking principle, we are now making a

Special, Cheap, New Line.

Self-Locking, with Maroon Finish and Polished Shackles



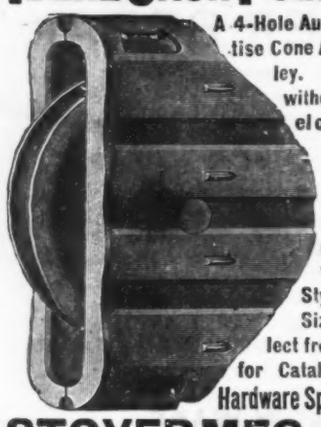
Each lock has two handsome **Cast Steel Keys** of unique design and light in weight, as shown on accompanying cut. This line is made especially for export and cheap trade.

Brass, Bronze Mal. Iron and Nickel Plated Self-Locking Scandinavian Padlocks.

W. DODMAN, Gen'l Agent, 103 Chambers Street, New York, N. Y.

Slaymaker, Barry & Co.
Manufacturers,
Lancaster, Pa., U. S. A.

IDEAL SASH PULLEY.



A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

STOVER MFG. CO.
145 River St., Freeport, Ill.

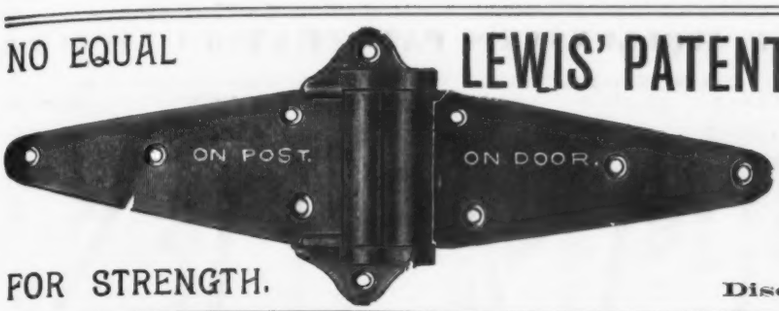


TRIUMPH CHAINS.

"TRIUMPH" WIRE CHAINS, Halter Chains, Dog Chains, Kennel Chains, Coil Chains, &c.; the most perfect Chains made for their various purposes; made of **Steel Wire** and possess great strength; much lighter than sheet metal or welded chains; no sharp edges; do not kink; no bad welds; in fact the most saleable and serviceable chains the trade can handle. Also "Monarch" Sash Chain, Plumbers' Safety Chains, &c. Send for catalogue.

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn.

NO EQUAL



FOR STRENGTH.

LEWIS' PATENT STRAP AND T HINGES

—— MANUFACTURED BY ——

E. B. LANMAN,

Columbus, Ohio.

Discounts mailed on application.



SAFETY LIP

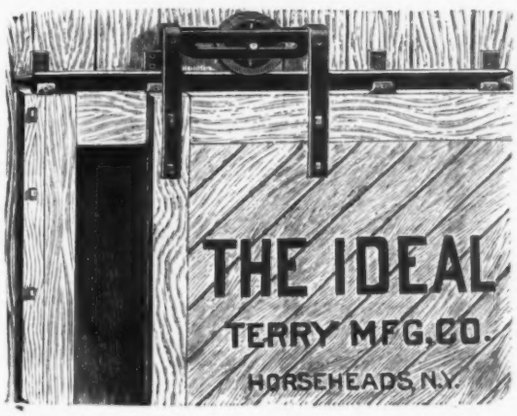
STEEL HANGER AND RAIL.

Derailment Impossible. Occupies least possible space.

VICTOR MFG. CO.,

NEWBURYPORT, MASS.

Sales Agents: Cutter, Woodrough & Co., Chicago, Ill., Wm. H. Cole & Sons, 13 S. Charles Street, Baltimore, Md.



THE IDEAL STEEL Anti-Friction Hanger.

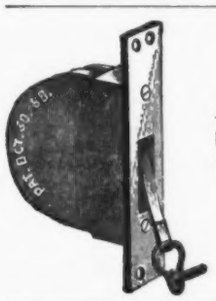
Sure to Please the Trade.

Works VERY EASY, is STRONG and combines ALL the BEST Features of an Anti-Friction Hanger.

4-in. Wheel, 6-ft. Run, $15 per doz. pairs.
5-in. " 10-ft. " 18 " " "

Would be glad to quote you Prices.

TERRY MFG. CO., Horseheads, Chemung Co., N. Y.



The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

CALDWELL MFG. CO., Rochester, N. Y.

READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

"NEVER-BREAK" Steel Cooking Utensils.



New and Perfect Shape.
Beautifully Polished.
Will not warp, crack or scale.
Will not absorb grease.
Will "Never-Break."

——Write for Prices to——

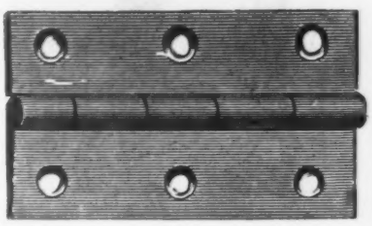
The Bronson Supply Co.,

CLEVELAND, OHIO.

New York Office, 51 Cliff Street.

Double Acting Spring **BUTTS**

SABIN'S LEVER DOOR SPRINGS
Coil, and Sabin's Volute Springs
For various purposes made to order.
SABIN MACHINE CO. Montpelier, Vt.



Cast-Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

Nos. 16 & 18 Chambers Street, New York.

MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY HARDWARE.

HARDWARE DEALERS
CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

MANUFACTURED ONLY BY

"THOMAS MORTON,"

65 Elizabeth Street,

Write for Prices. **NEW YORK.**

Palmer's Common Sense Frame Pulley.



MANUFACTURED BY
PALMER HARDWARE MFG. CO., Troy, N. Y.
Sole Eastern Agts., Peabody & Parks, Troy N. Y.

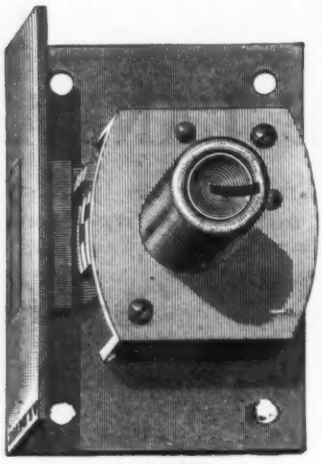
SASH WEIGHTS

E. E. BROWN & CO.,

McKean and Meadow Sts.,

PHILADELPHIA, PA.

A. E. DEITZ.



No. 51 LOCK.

J. C. McCARTY & CO., Agents,

97 Chambers & 81 Reade Sts., New York.

Factory, BROOKLYN, E. D., N. Y.

IVES' PATENT

SASH LOCKS



Offers greater security and durability combined, and has a larger sale than any other Sash Lock or Sash Fastener on the market.

Important features are in securely locking when open or closed, and simultaneously carrying the MEETING RAILS in position, and drawing them closely together.

The Ives Patent Sash Locks are manufactured under nine patents in all styles of finish.

Address us for price-list, mailed free, showing fifty styles Sash Locks and Door Bolts.

MANUFACTURED ONLY BY

HOBART B. IVES & CO.,

NEW HAVEN, CONN.



PAT. NOV. 15, '87.

The Champion Window Sash Lock

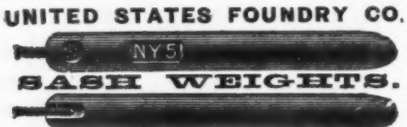
IS KING OF THEM ALL!

It combines *all* the qualities desirable in a sash lock, having the merit of extreme *simplicity* and *remarkable strength*, combined with the *greatest efficiency* of any lock now known. Architects, Builders and Hardware Dealers are receiving them with universal and enthusiastic approval.

The Champion Safety Lock Co.,

99 and 101 Water St., - Cleveland, Ohio.

UNITED STATES FOUNDRY CO.



SASH WEIGHTS.

Foundries: Long Island City, N. Y., Brooklyn (N. 11th St.), N. Y., Brooklyn (Leonard St.), N. Y. Baltimore, Md., Jersey City, N. J., Chelsea, Mass.

Office: 56 Pine Street, New York.

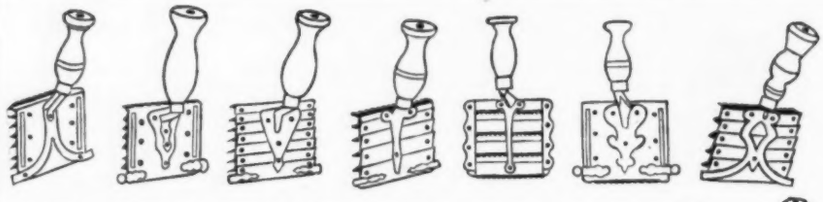
J. F. WOLLENSAK'S PAT. TRANSOM LIFTERS

Old Reliable. CLASS 3. CLASS 3. CLASS 4. | **New Goods.** EAGLE. CROWN. SHIELD.



FOR PRICES, &c., APPLY TO

J. F. WOLLENSAK, Patentee and Maker, CHICAGO, ILL.



OUR CURRY COMBS ARE THE SELLERS.

SEE OUR CATALOGUE.



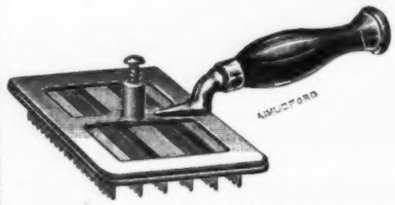
Southington Cutlery Co.,

SOUTHINGTON, CONN.

The "MAUD S" CURRY COMB,

With Striper and Round Pointed Teeth is the BEST IN THE WORLD.

(Patented Nov. 4, 1884.)





For sale by dealers everywhere. Manufactured only by

B. B. NOYES & CO., Greenfield, Mass., U. S. A.

Send for Circular and Prices. Mention THE IRON AGE.

BLACK DIAMOND FILE WORKS.

Medals Awarded at the following Expositions:

Cincinnati, 1875.
American Institute, 1875.

New Orleans, 1884-1885
Franklin Institute, 1885.



Centennial, Philadelphia, '76
Louisville, 1883-1885.

London, England, 1887.
Ohio Centennial, 1888

G. & H. BARNETT,

21 to 48 RICHMOND STREET, - - - PHILADELPHIA.

Philadelphia, 1876. **For Superiority.**

McCAFFREY FILE CO.,

FIFTH and BERKS STS.,

PHILADELPHIA, PA.



Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade

Superiority acknowledged wherever used, sold or exhibited.

Best on Earth.

CHELSEA HAND-CUT RASPS.

CHELSEA FILE WORKS, Norwich, Conn.

WESTERN FILES · WARRANTED SUPERIOR QUALITY · WESTERN·FILE·CO·LIMITED · BEAVER FALLS PA

Steel Tapes

FROM 3 FEET TO 100 FEET IN LENGTH.



We propose to make these goods standard.

SEND US A SAMPLE ORDER.

THE LUFKIN RULE CO.,

Cleveland, Ohio.

General Sales Agency—S. A. HAINES CO.,
90 Chambers St., N. Y.

FIRE HOSE

FIRE DEPARTMENT SUPPLIES
Fire Axes, Fire Buckets,
Rubber, Leather, Cotton and Linen Hose

JOHN H. CLAY, Manufacturer,
1320 Ridge Avenue, Philadelphia.
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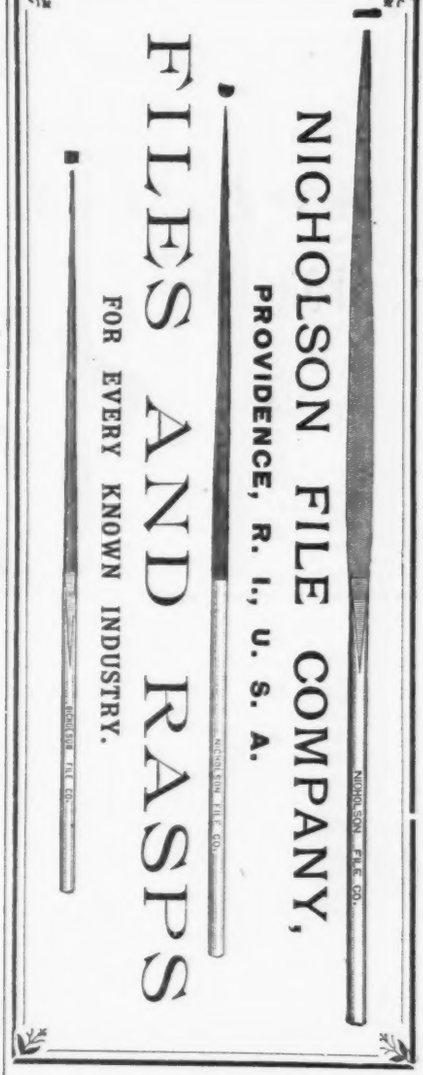
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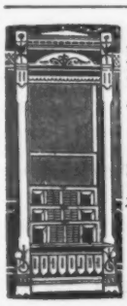
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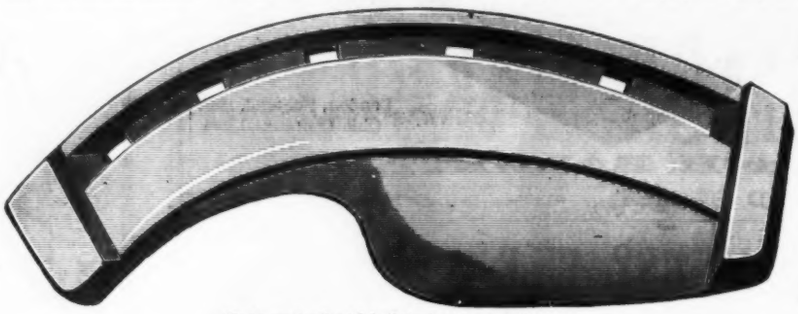
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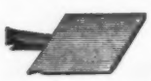
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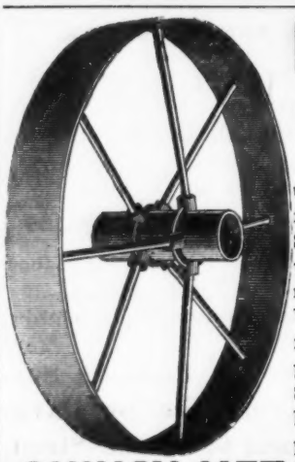
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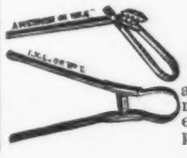
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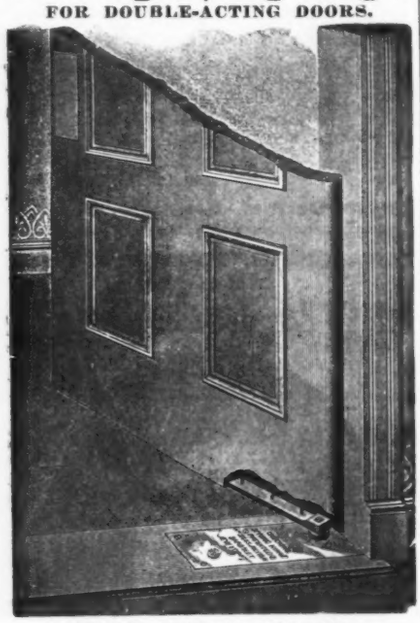


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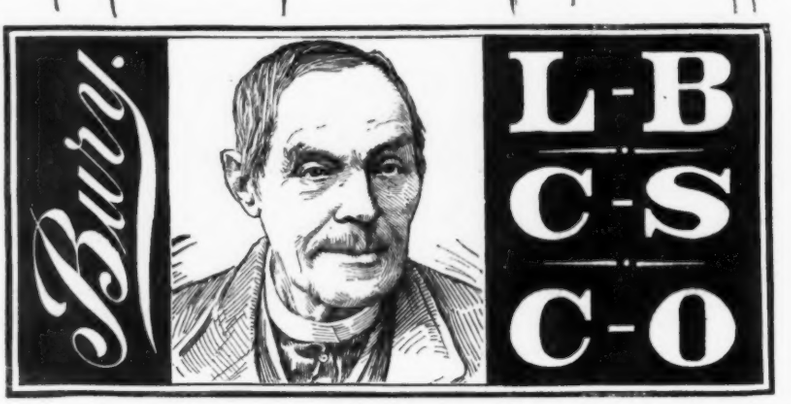
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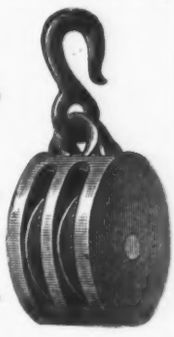
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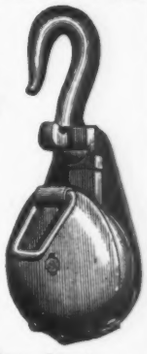
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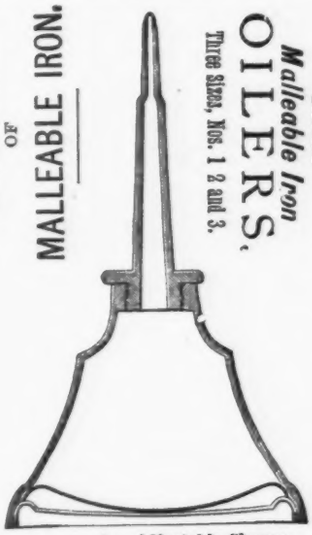
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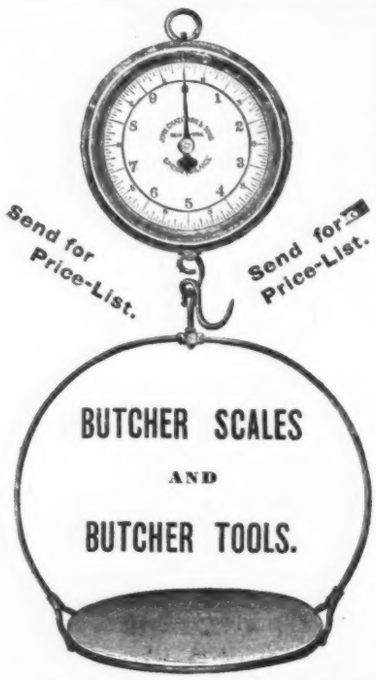






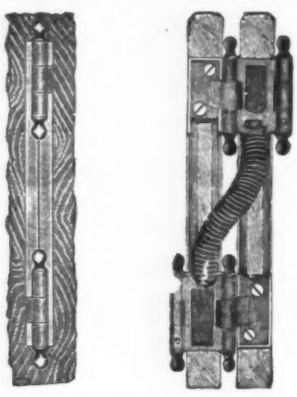
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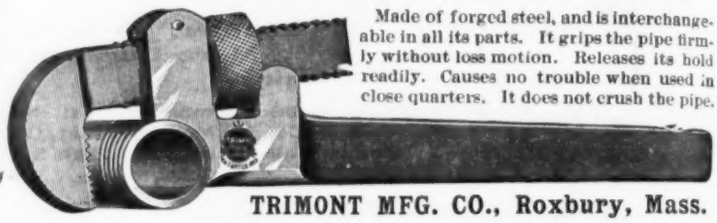
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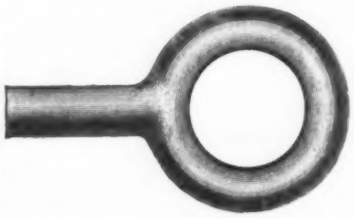
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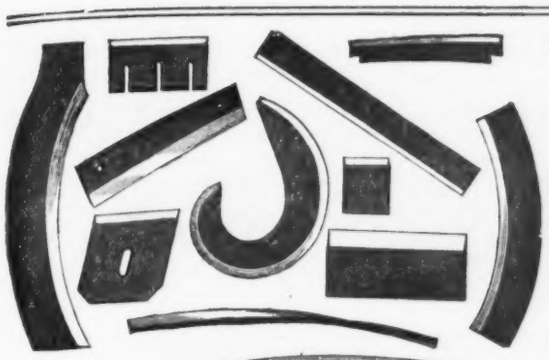
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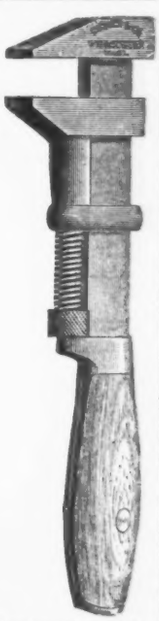
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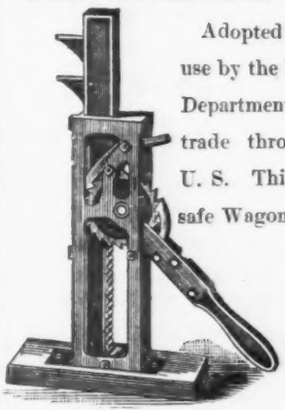
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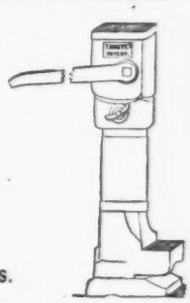
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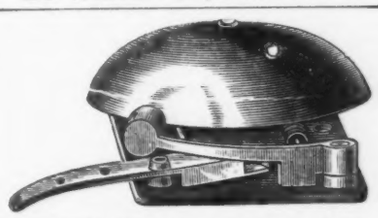


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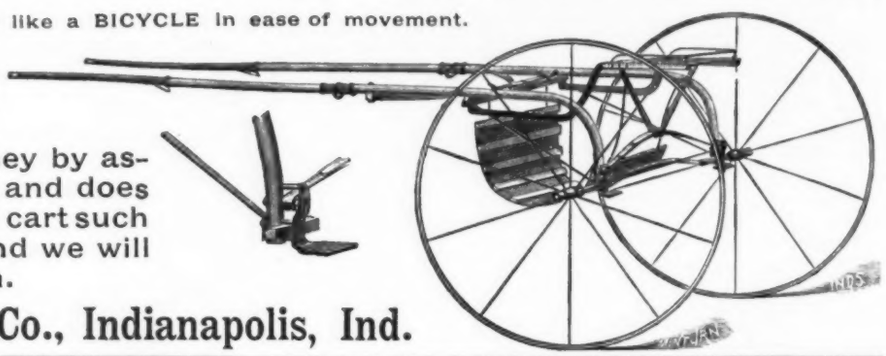
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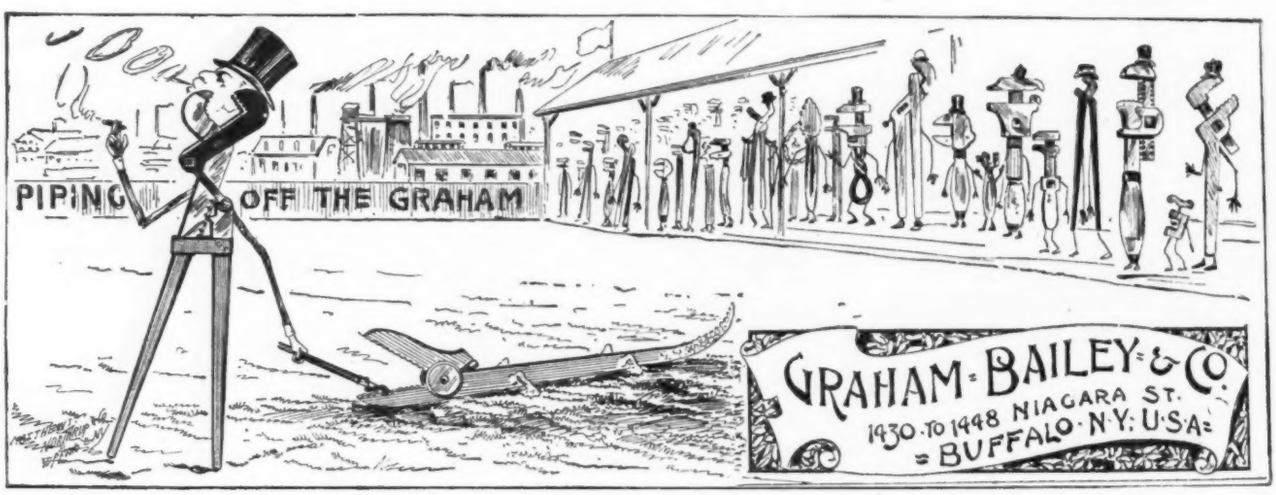
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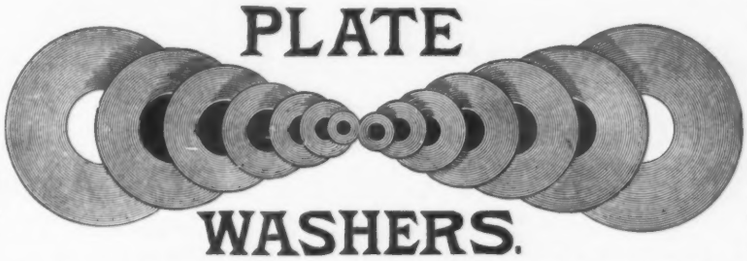
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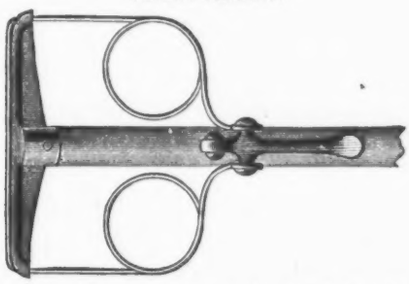
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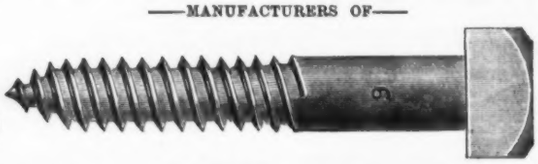
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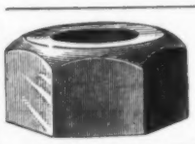
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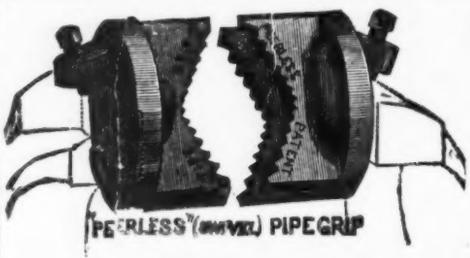
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Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick. *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

(See Alphabetical Index, Page 96.)

Fodder Cutters.
Silver Mfg. Co., Salem, O.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Collíau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
Russia Cement Co., Gloucester, Mass.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Mach. Co., Provid[illegible]e R. I.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.
Tommins & Adams, 116 Chambers, N.Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails. *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Phila., Pa.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan. Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Kenley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L, Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Mop Sticks.
Peabody & Parks, Troy, N. Y.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mcl.. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chailiaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.
Universal Lock Co. of New York.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Haik & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord. Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris, Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power. *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps. *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

(See Alphabetical Index, Page 96.)

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Thompson Mfg. Co., Cleveland, O.

Rules, *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons. Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Richie Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hardware Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shot.
Globe Shot Works, Philadelphia, Pa.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Am. Skate Co., Philadelphia, Pa.
Dame, Stoddard & Kendall, Boston, Mass.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 700 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa.
Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co!, Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Anthony & McElroy, Philadelphia, Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty,
Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Wks, Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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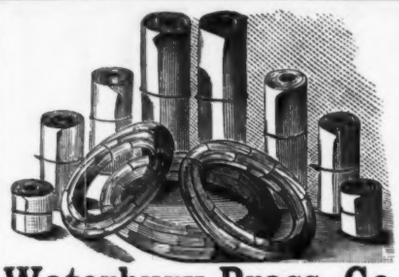
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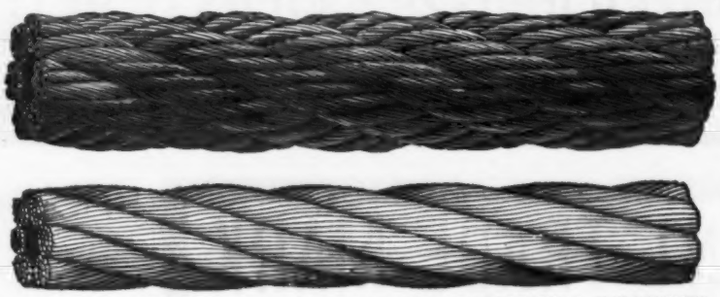
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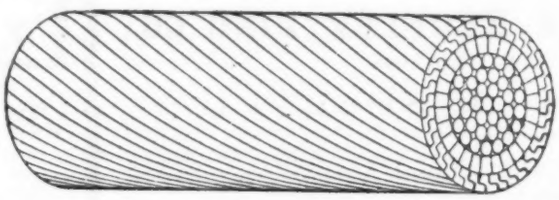
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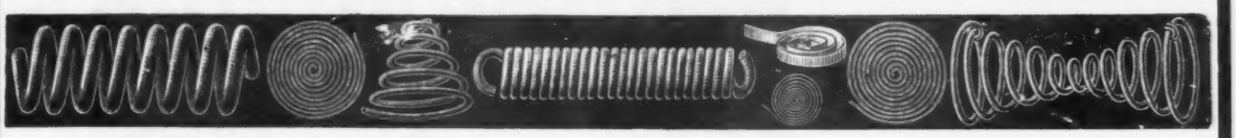
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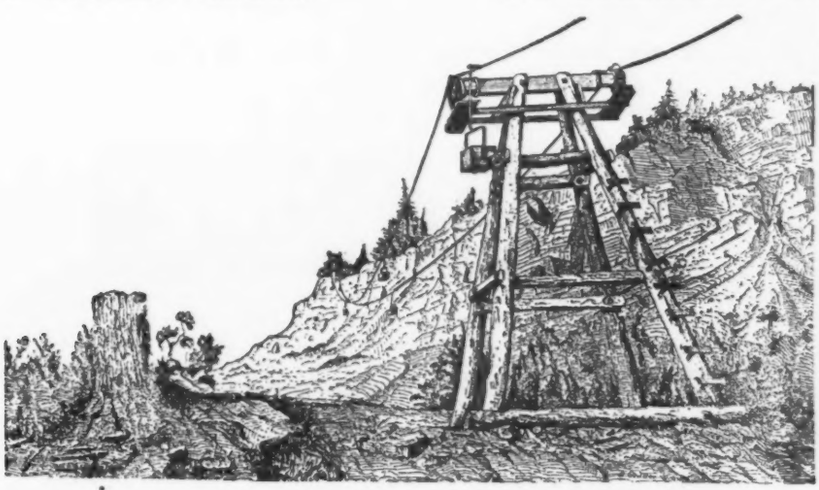
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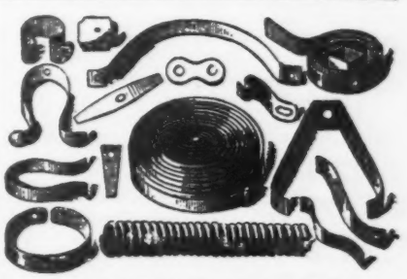
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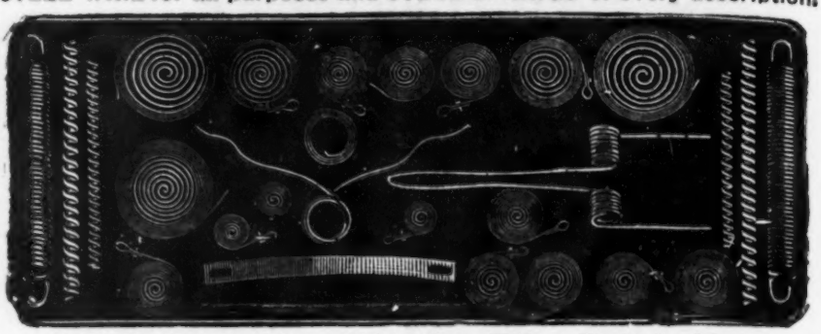
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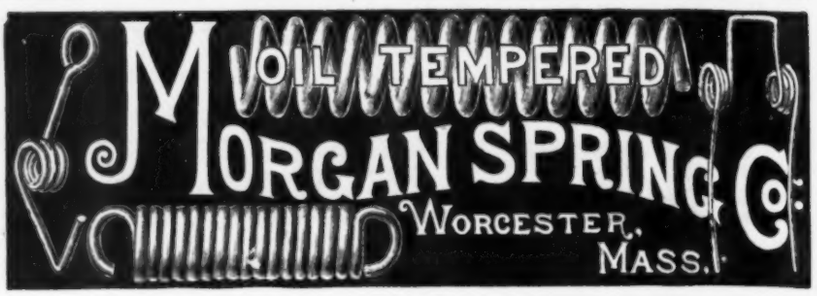
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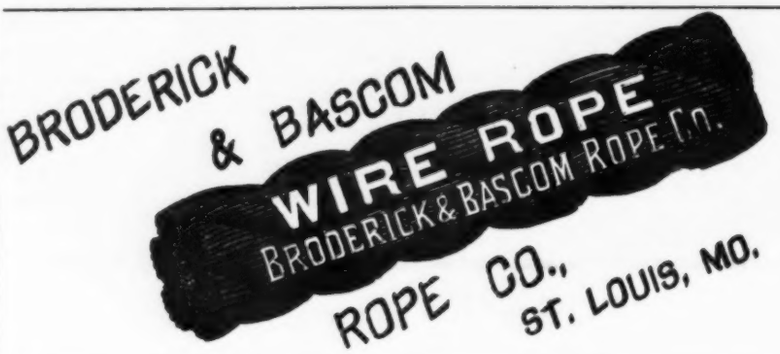
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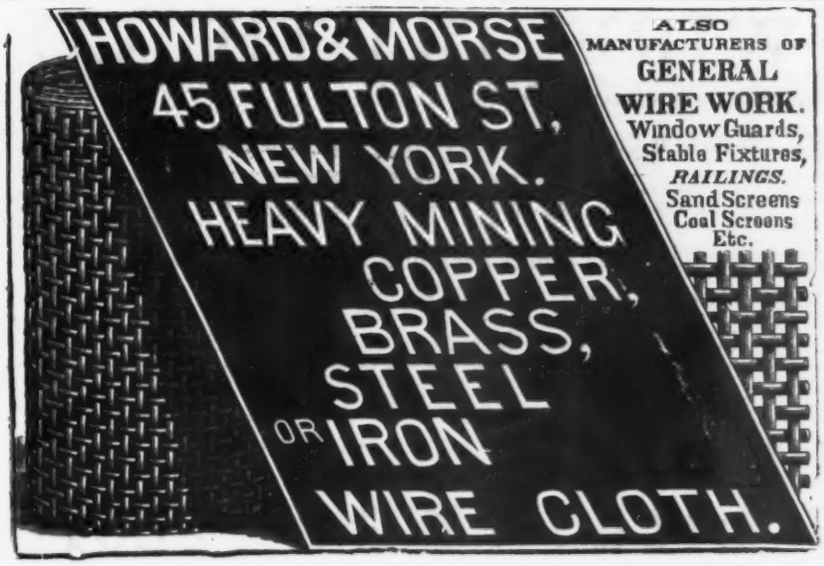
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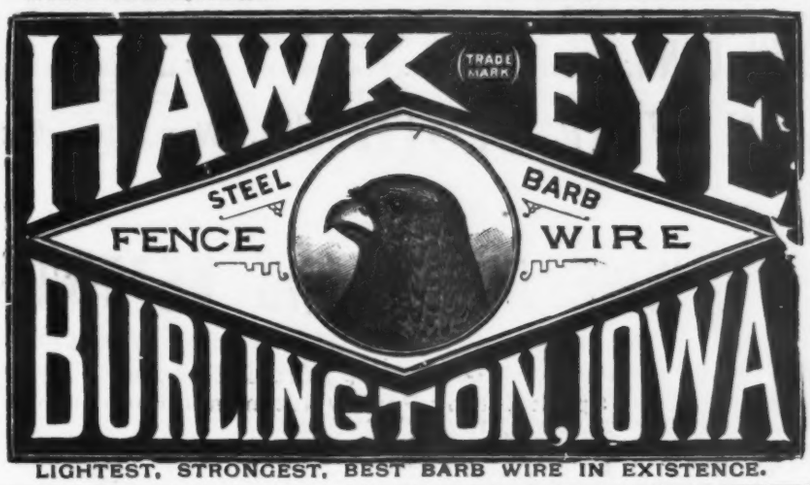
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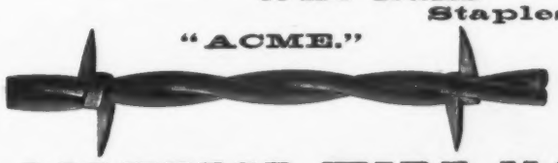
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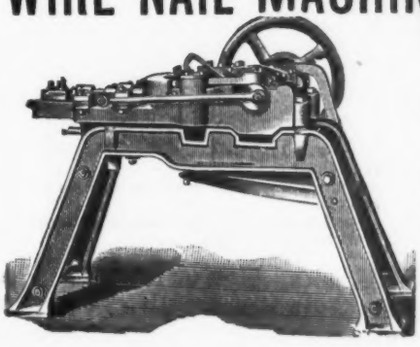
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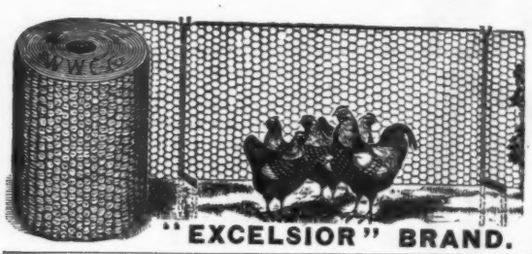
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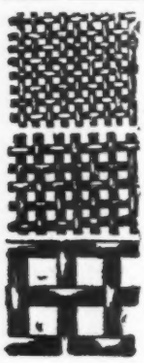
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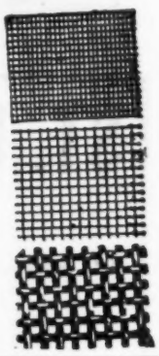
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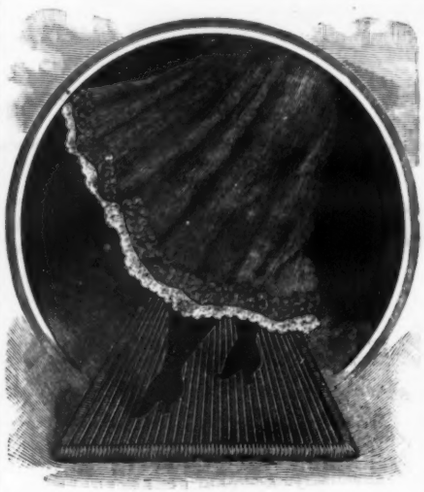
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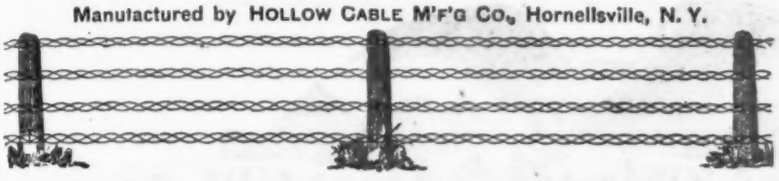
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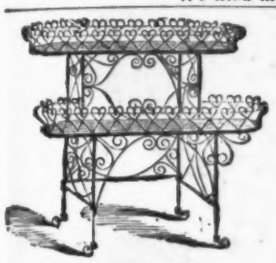


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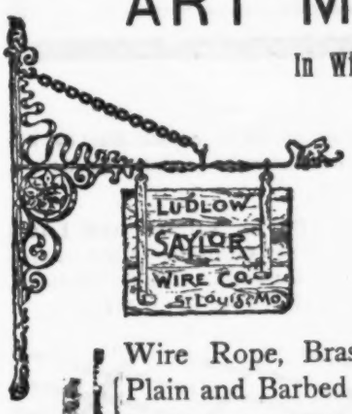


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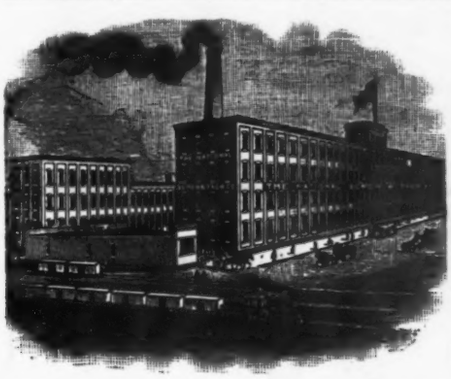
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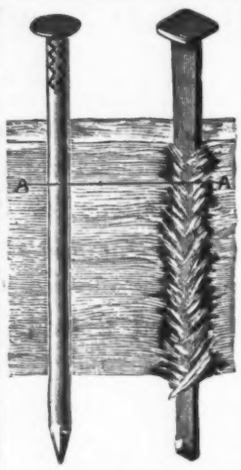
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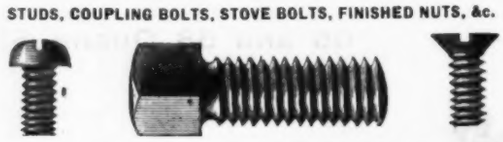
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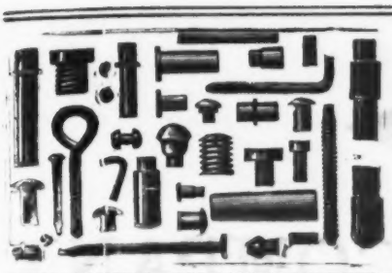
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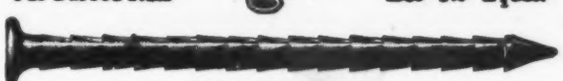
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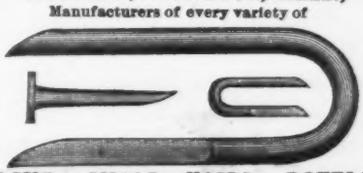
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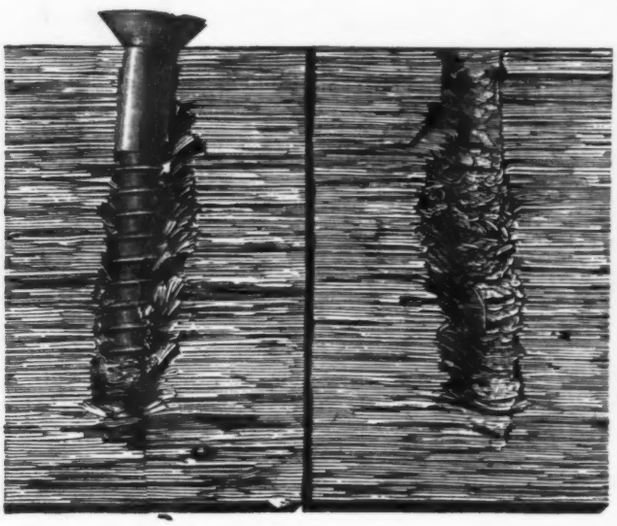
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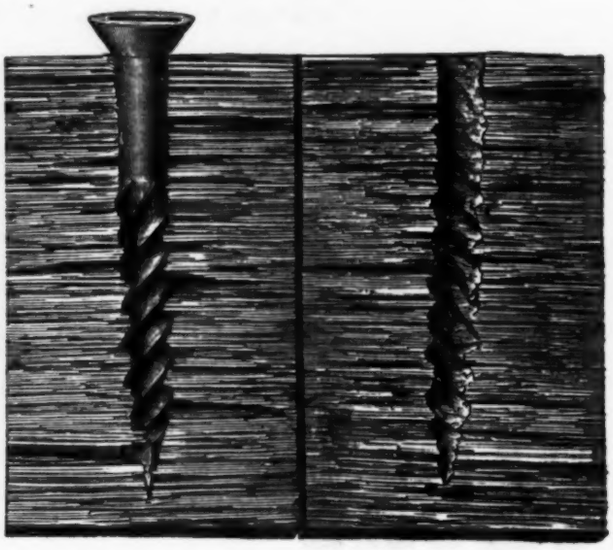
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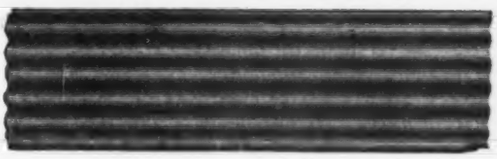
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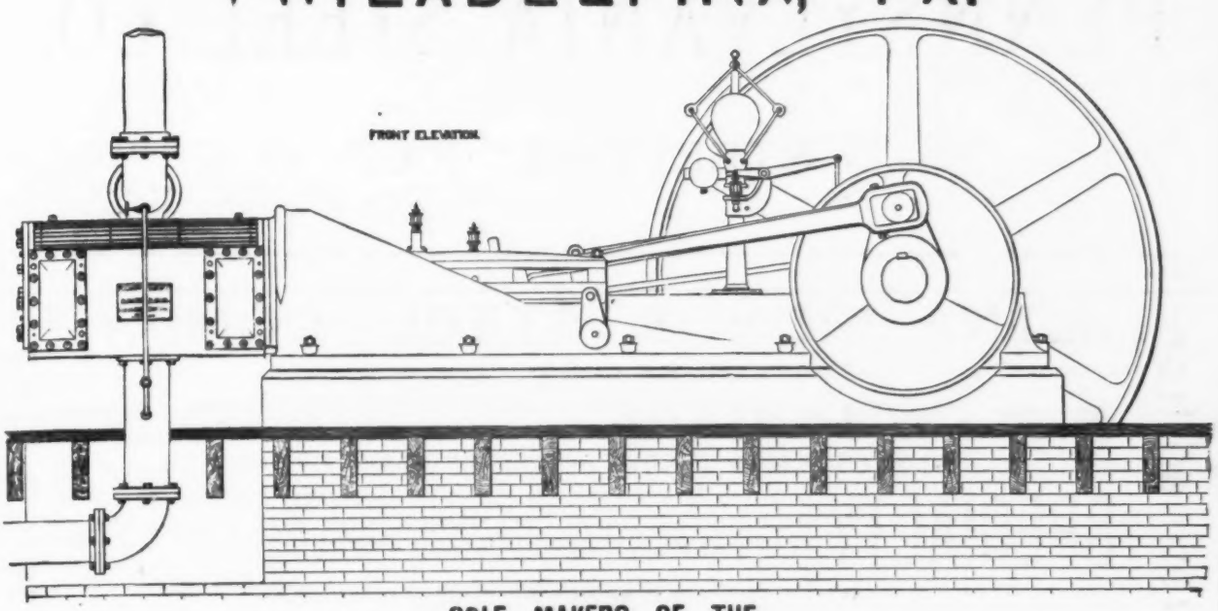
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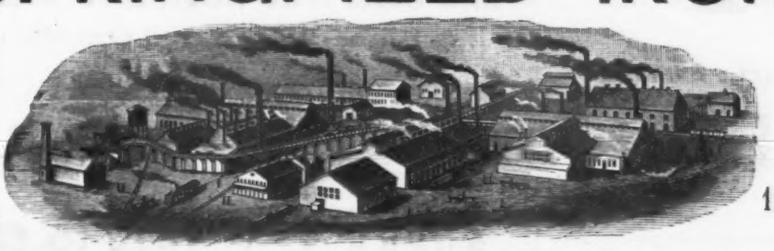
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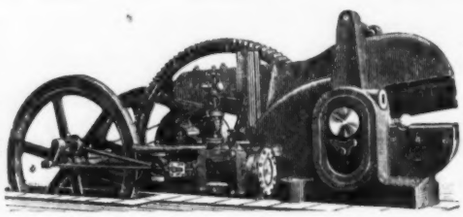
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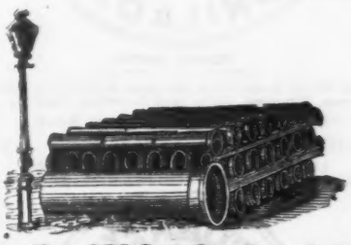
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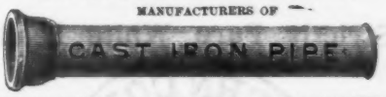
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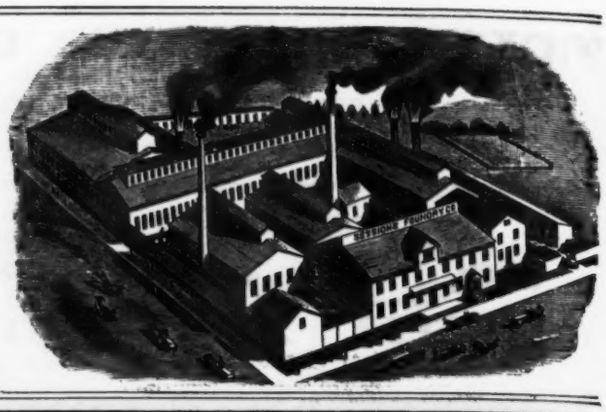
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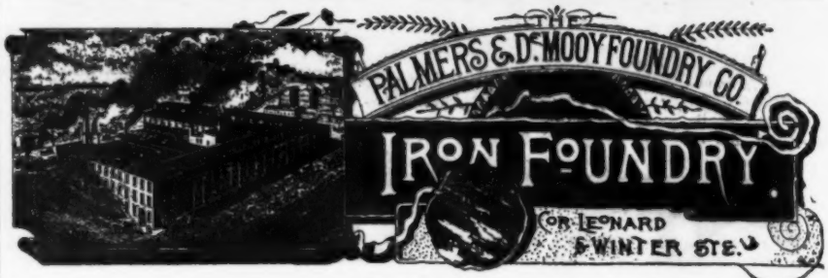
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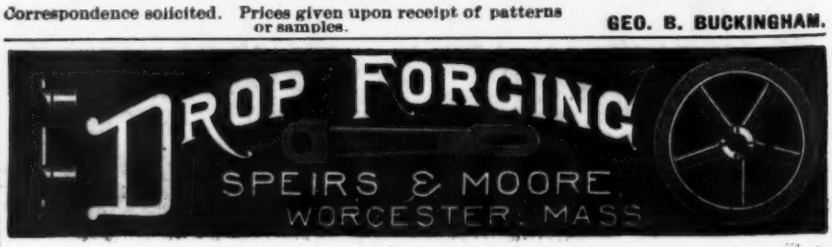
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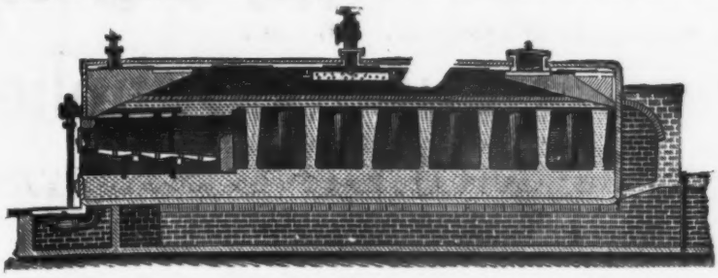
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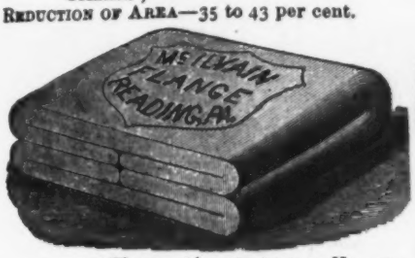
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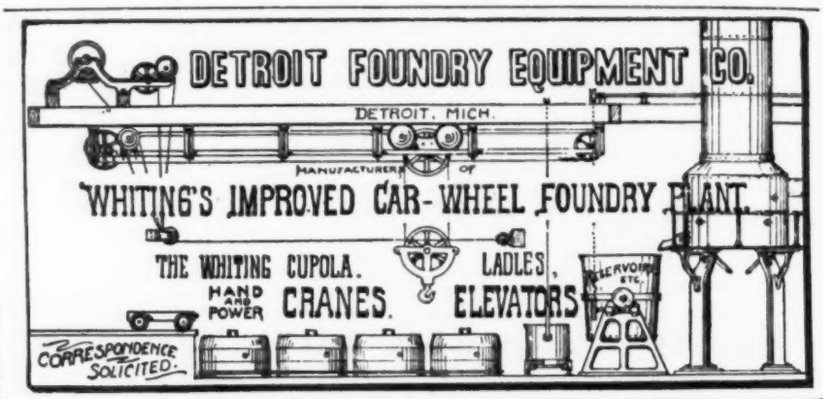
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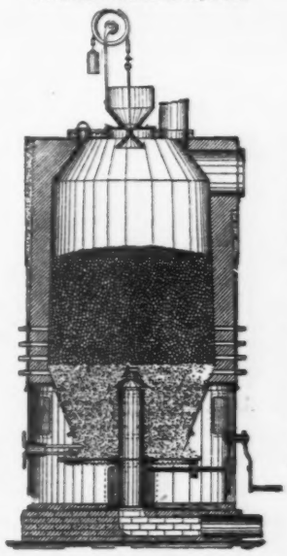
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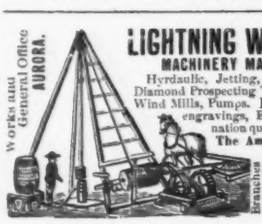
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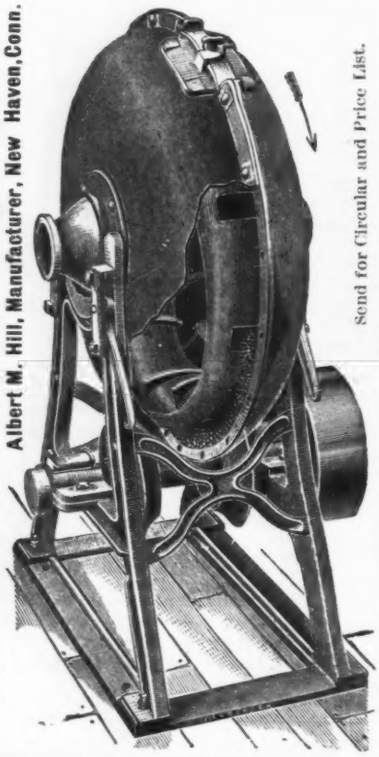
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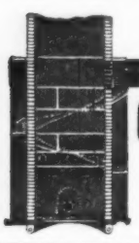
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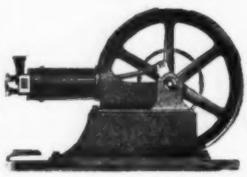
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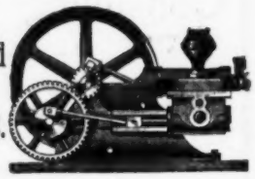


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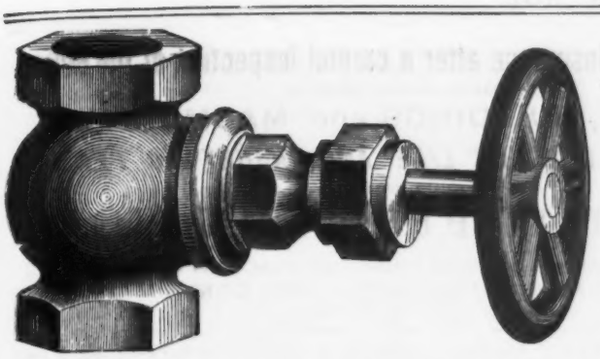


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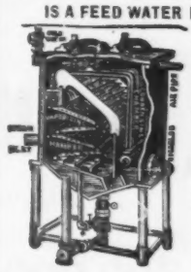
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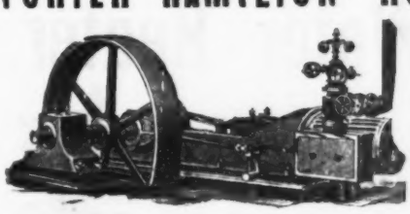
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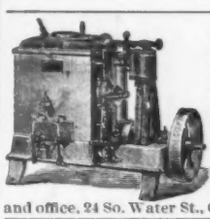
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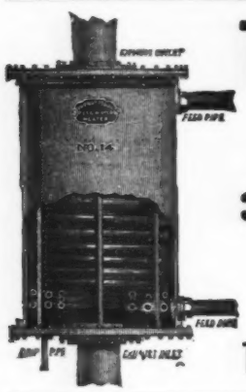
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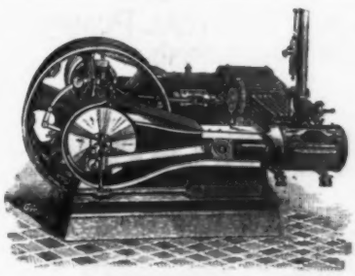


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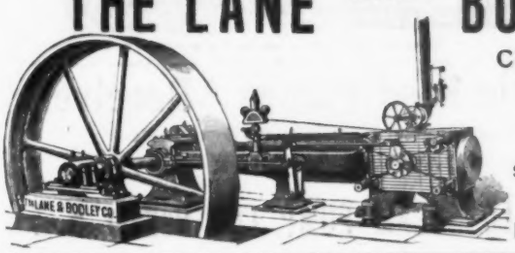
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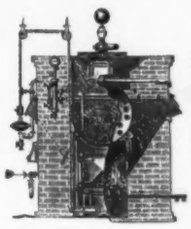
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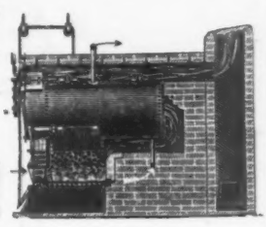
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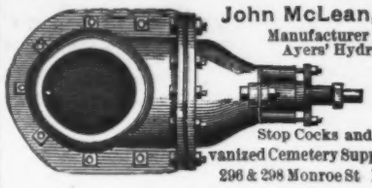
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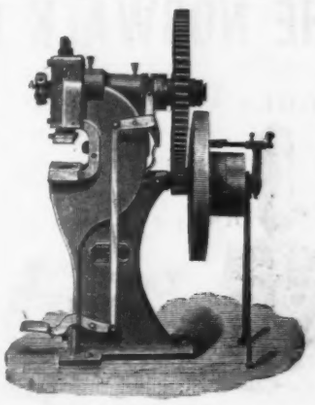
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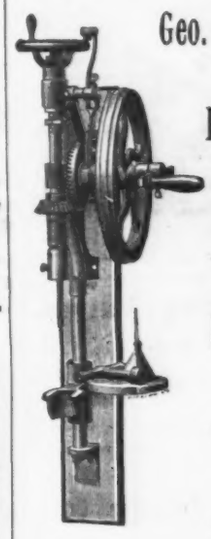
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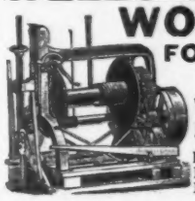
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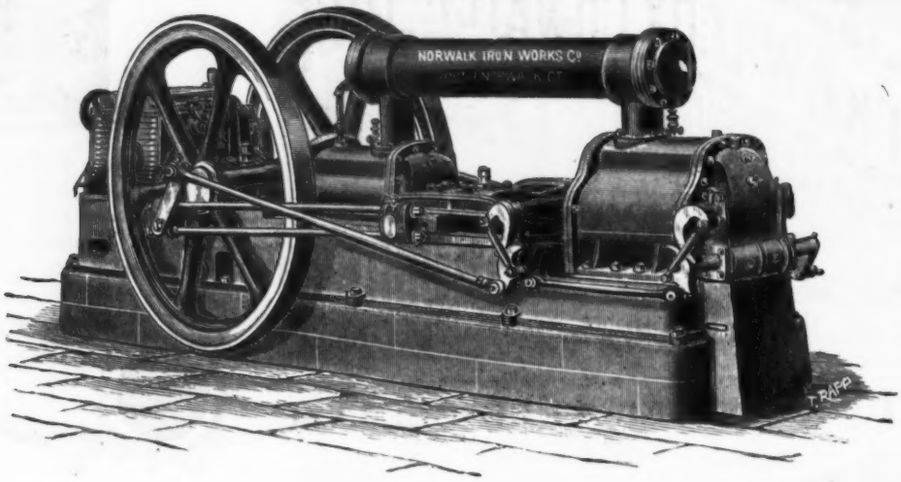
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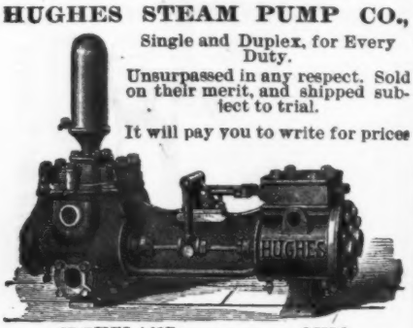
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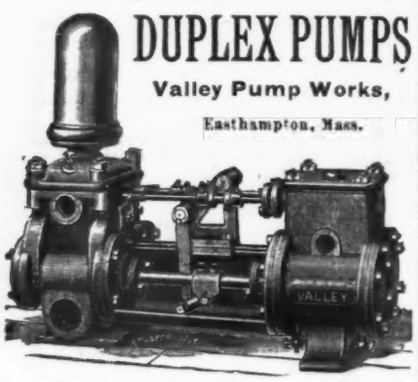
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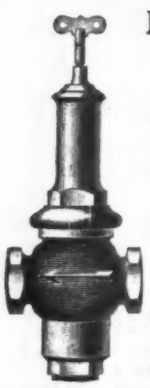


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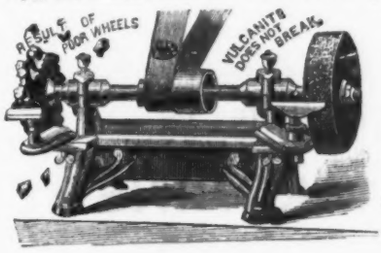
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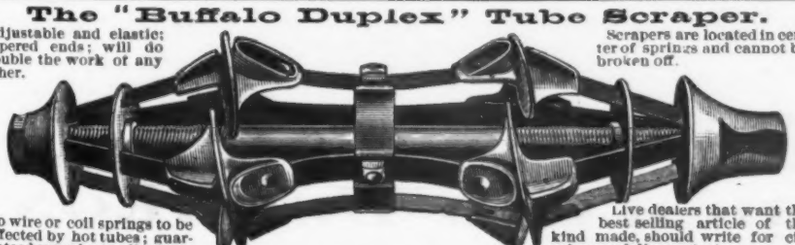
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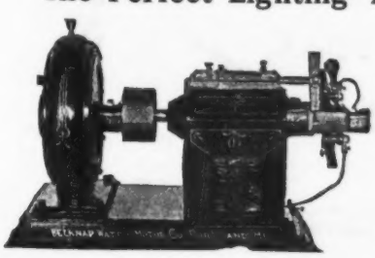


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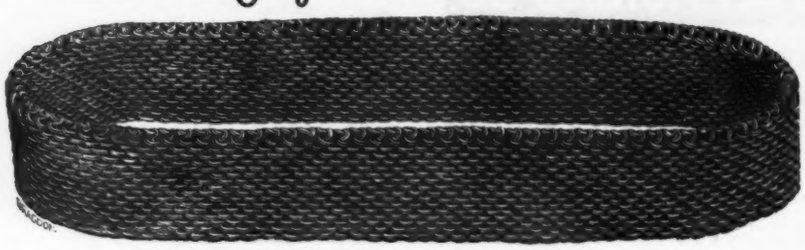
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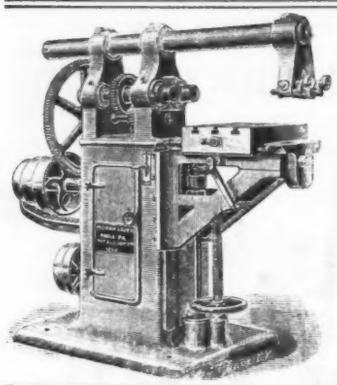


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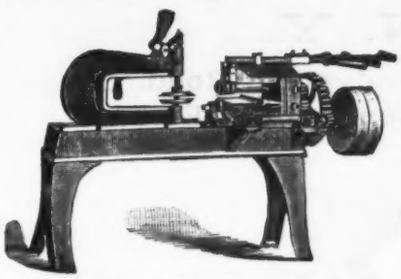
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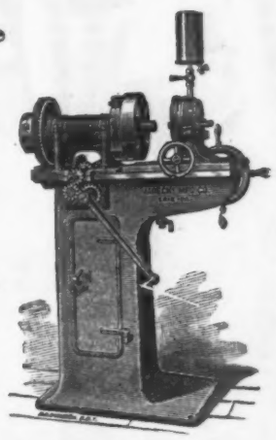
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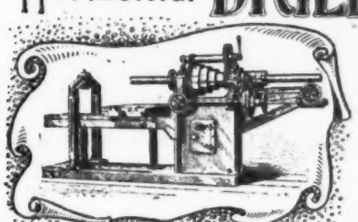
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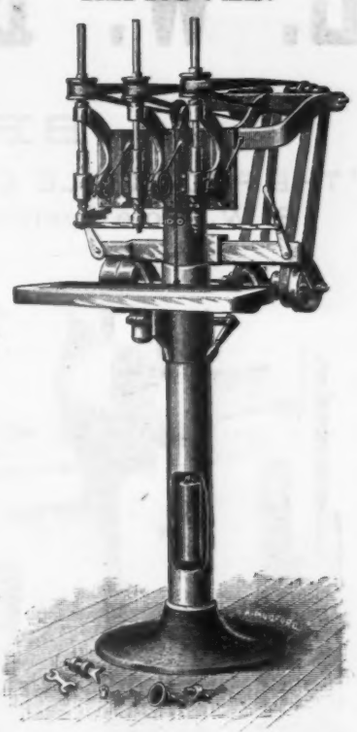


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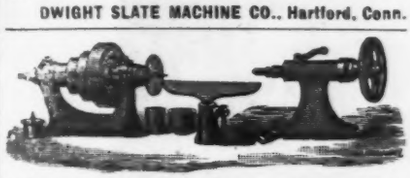
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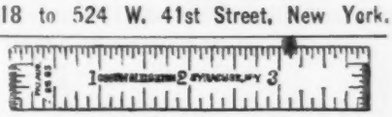


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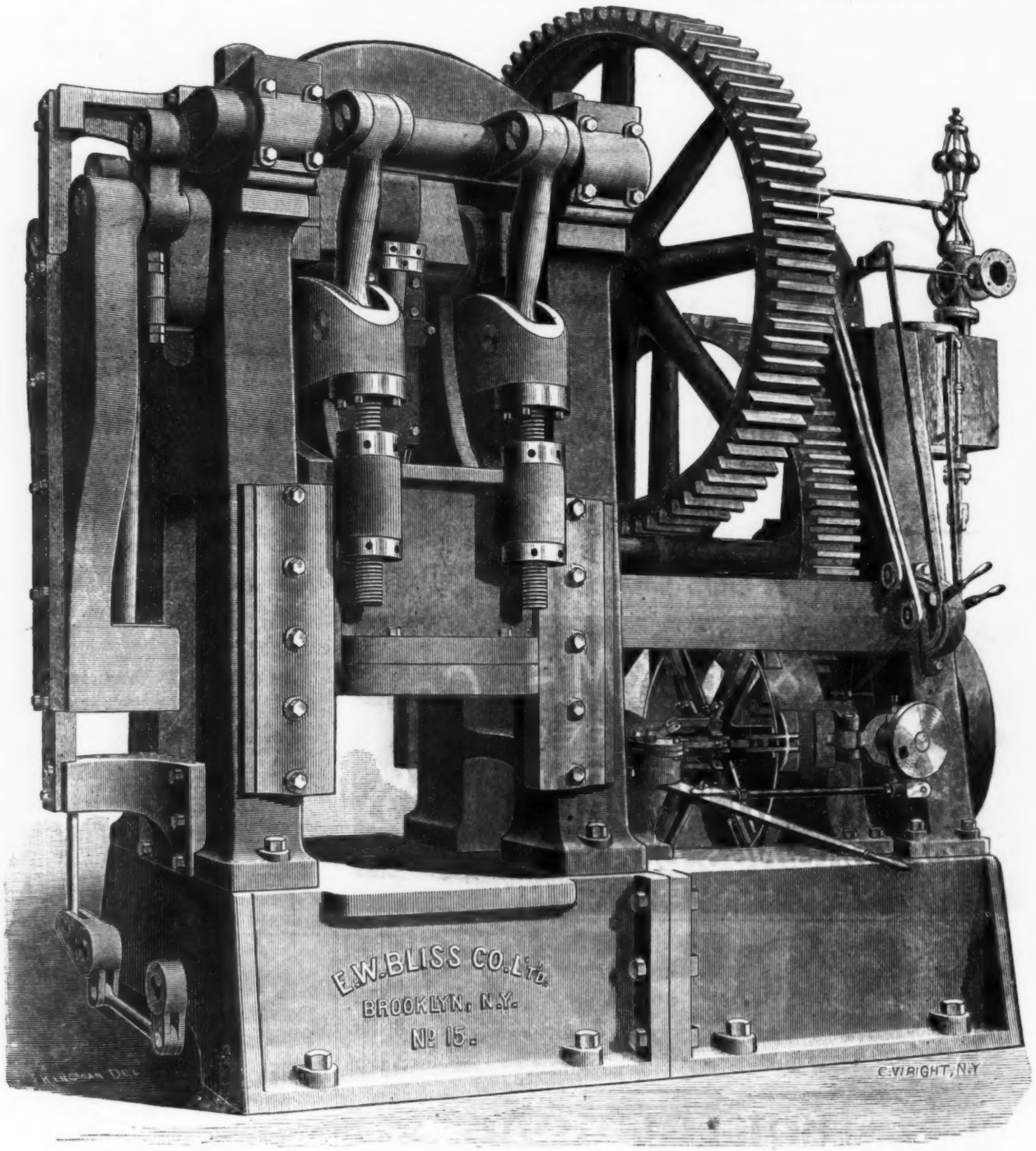
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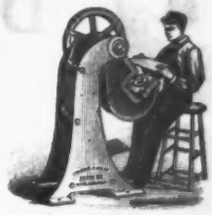
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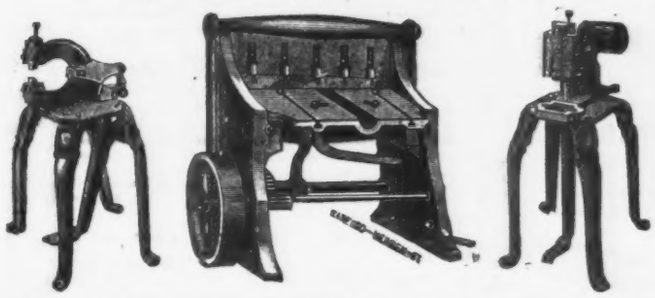
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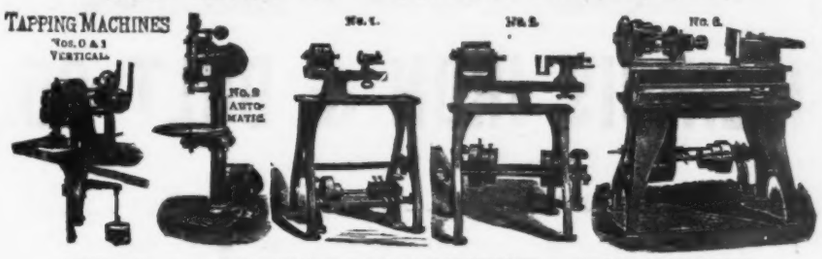


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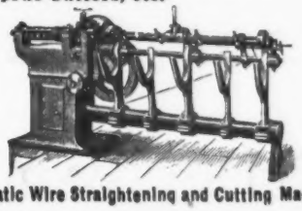
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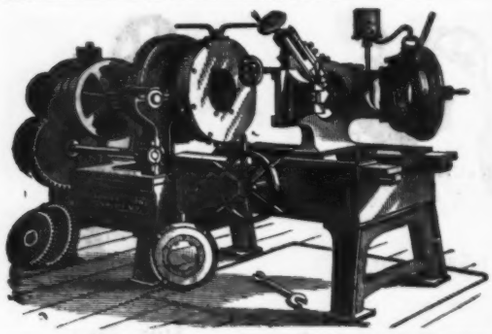
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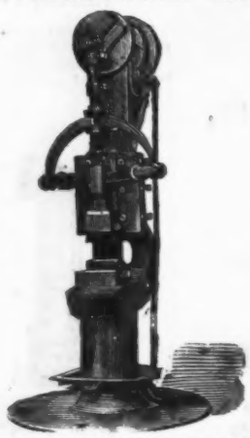
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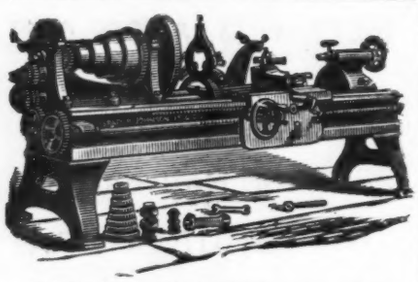
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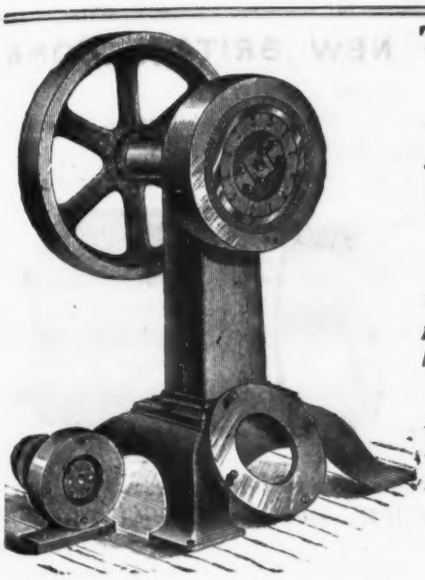


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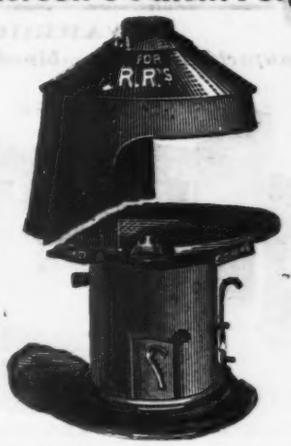
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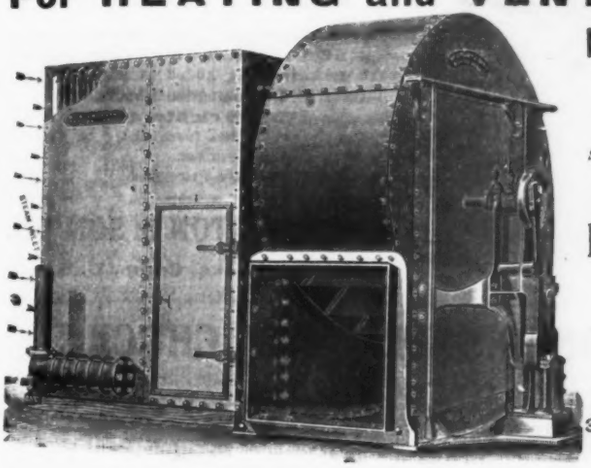


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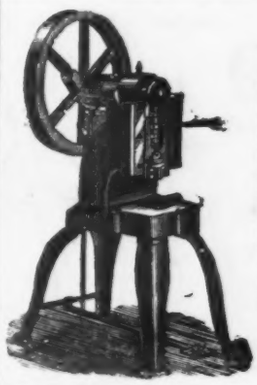
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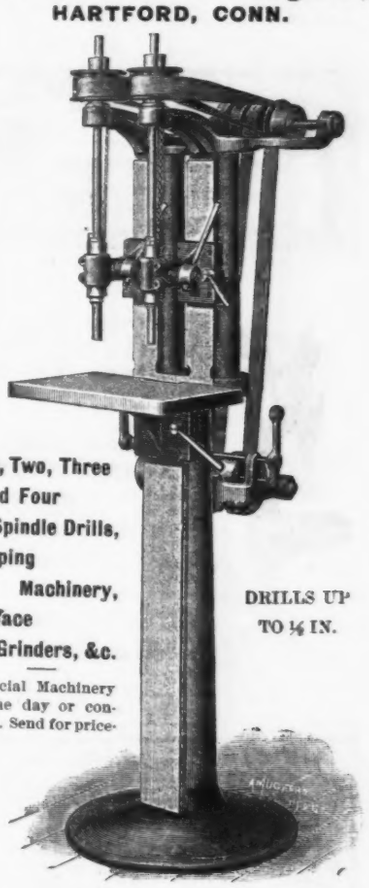
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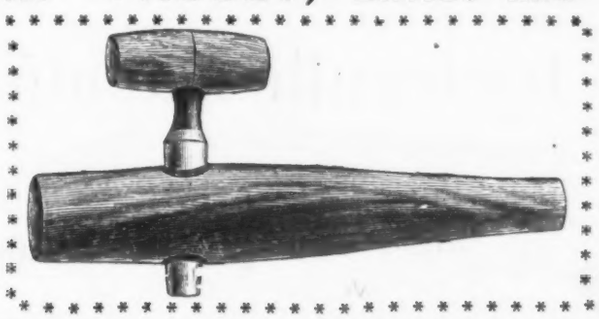
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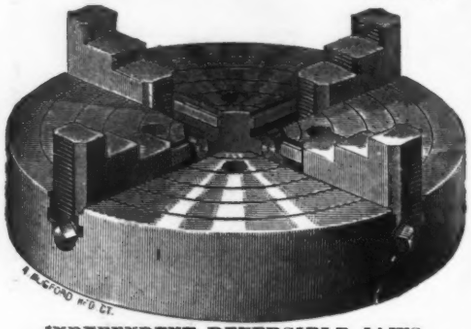
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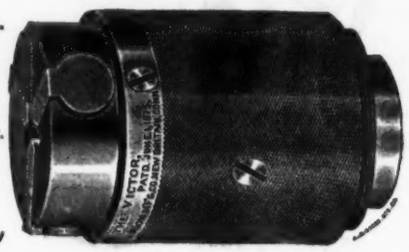
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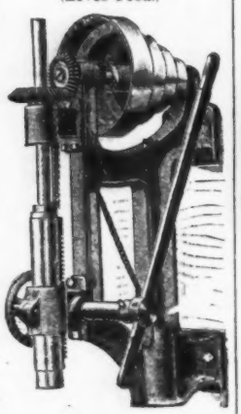


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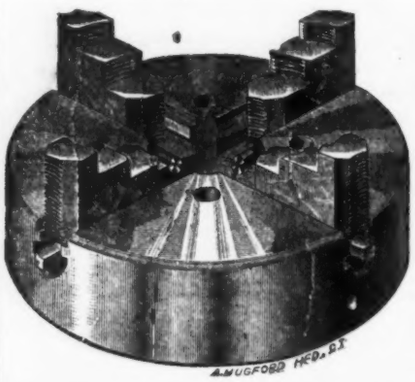
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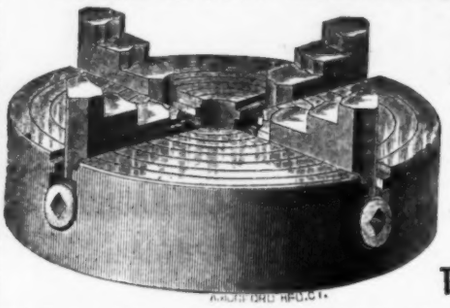
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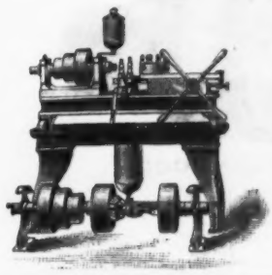
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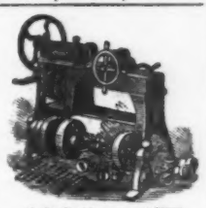
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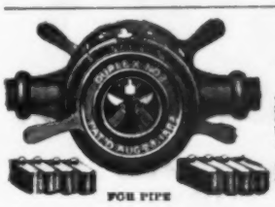
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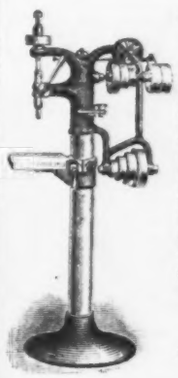
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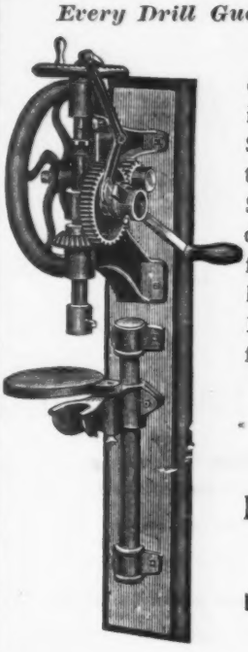
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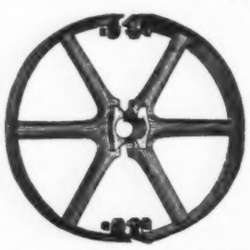


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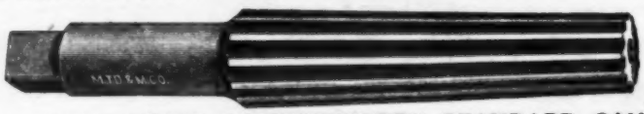
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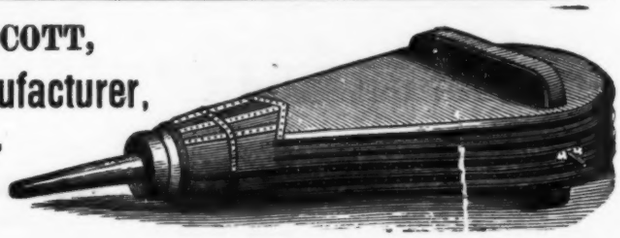
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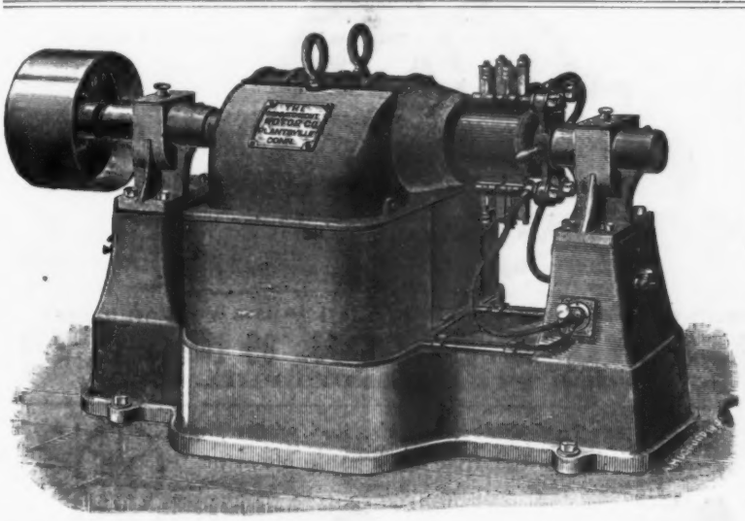
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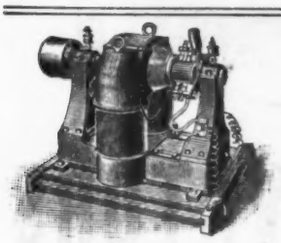
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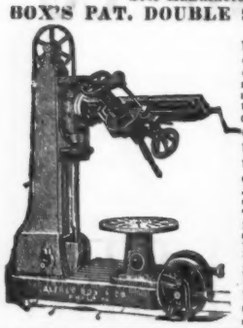
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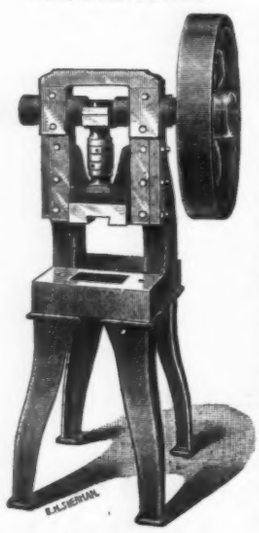
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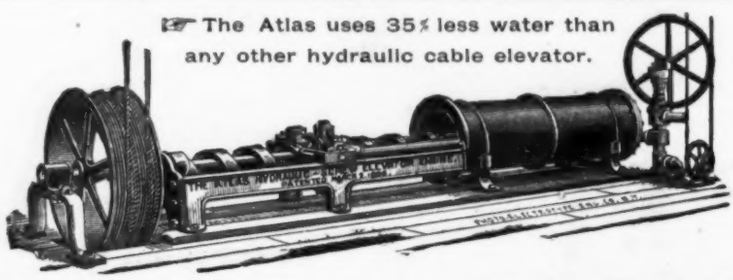
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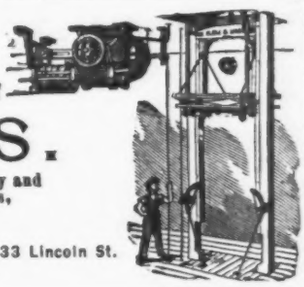
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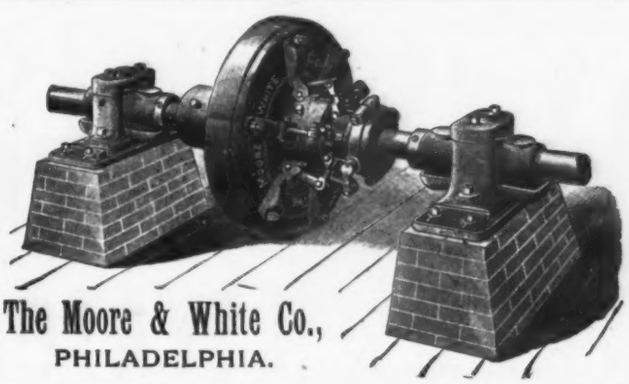
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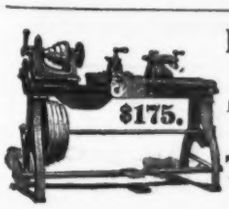
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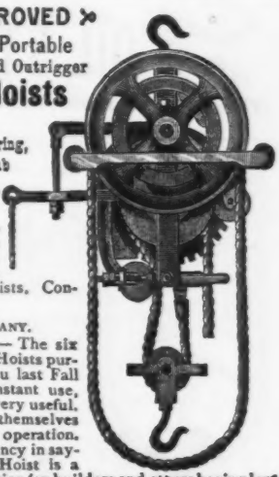
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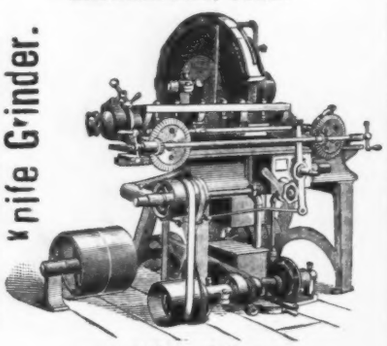
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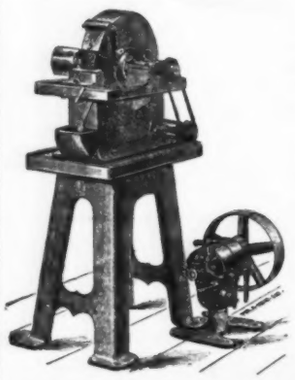
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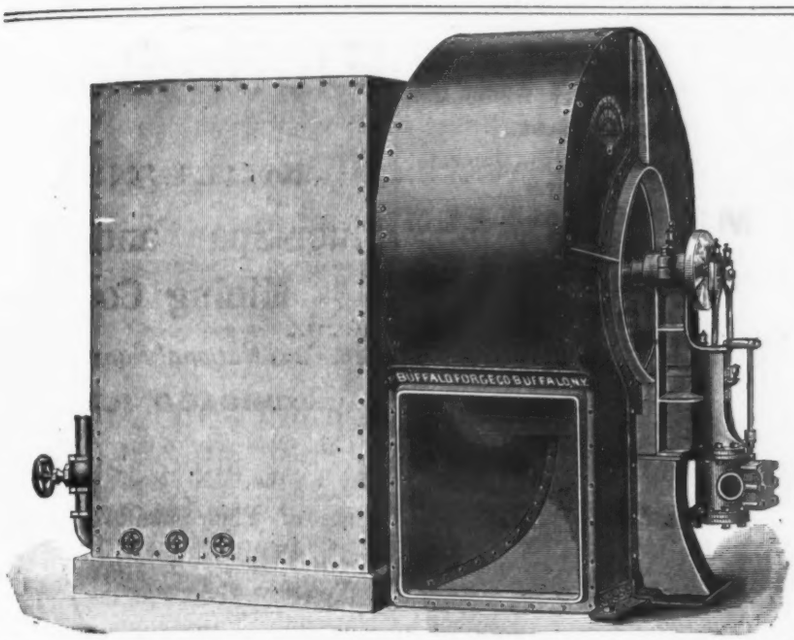
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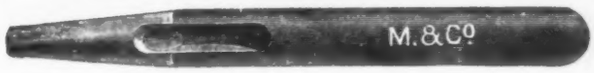
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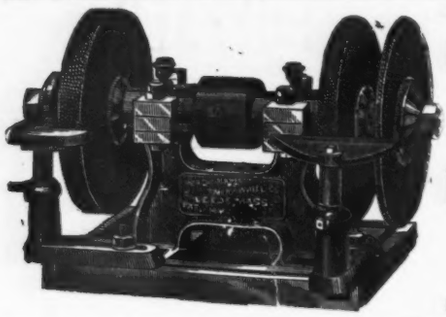


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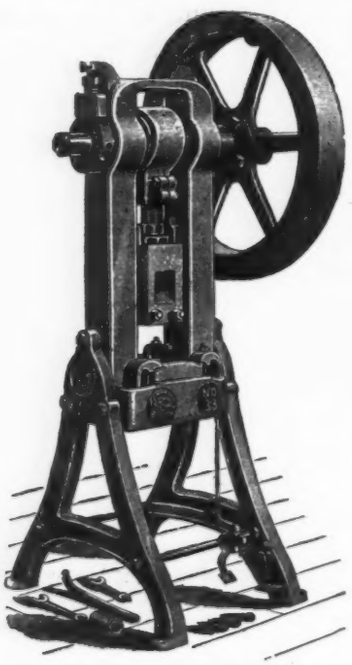
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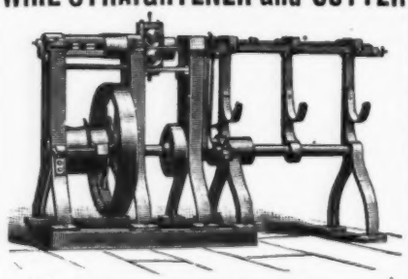
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Engine Lathes.—42 in. x 12 ft.; 32 in. x 12 ft.; 29 in. x 15 ft.; 24 in. x 28 in. x 20 ft.; 1 each 24 x 10 ft. 12 ft. and 16 ft.; 1 each 17 in. x 6 and 8 ft.; 1 each 16 in. x 6, 8 and 10 ft.; 1 each 14 in. x 6 and 8 ft.; 6 12 in. x 5 ft.; 2 each 11 in. x 4 and 5 ft.; 2 each 10 in. x 4 ft. power or foot power; 1 16 in. x 6 ft., 15 in. x 6 ft., 14 in. x 5 ft. Fox Monitor Lathes; 1 15 in. x 6 ft. Square Arbor Fox Lathe; 1 each 15 in. x 6 ft. and 14 in. x 5 ft. Turret Lathe; 1 Engine Lathe, 14 in. x 6 ft. Toper.
1 Iron Planer, 16 in. x 16 in. x 3 ft.
1 Planer, 20 in. x 20 in. x 4 ft. and 22 in. x 22 in. x 5 ft.
1 " 24 in. x 24 in. x 5½ and 6 ft.
1 " 30 in. x 30 in. x 6 ft. 30 in. x 30 in. x 9 ft.
1 " 32 in. x 32 in. x 10 ft. 42 in. x 36 in. x 12 ft.
" 36 in. x 28 in. x 10 ft.
1 " 60 in. x 66 in. x 24 ft. with 1 head.
1 " 30 in. x 30 in. x 9 ft. with 1 head.
1 " 32 in. x 32 in. x 10 ft. with 2 heads.
1 " 42 in. x 42 in. x 12 ft. with 2 heads.
1 " 50 in. x 50 in. x 17 ft. with 1 head.
1 " 100 in x 100 in. x 18 ft. with 2 heads.
1 Friction Shaper, each 15 in., 20 in., 30 in. stroke.
1 Crank Shaper, each 12 in., 15 in., 20 in. adj. stroke.
1 each Nos. 1, 2, 3 and 4 Wire Feed Screw Machines.
1 each Nos. 5 to 8 Screw Machine. Power Feed.
1 each 2, 3, 4 and 6 Spindle Gang Drills.
3 Crank Planers. 6 Lincoln Pat. No. 2 Millers.
1 each Nos. 51, 52 and 53 Ferracute Presses.
1 No. 3 Stiles & Parker Geared Press.
1 No. 2½ in. Fowler Press. 10 foot and Power Presses.
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1 Boiler Plate Shear, 33-in. throat.
12 Punching and Shearing Machines, assorted.
1 Bolt Cutter, each ¼ in. to 1 in. and ½ in. to 2 in.
1 36 in. Gear Cutter.
1 each 48 in., 60 in. and 72 in. Radial Drill.
1 New Horizontal Boring Machine with facing attachment. Newark Machine Tool Co., makers.
1 48-in. Gear Cutter.
1 Sellers Jib Crane, 50 tons.
1 Power Mortising Machine.
1 50 in. Pulley Lathe.
2 Profiling Machines.
1 16 ft. Boring and Turning Mill.
1 10 in. x 12 in. Valley Automatic Engine
1 36 in. Upright Drill.
1 20 in. stroke Fitchburgh T. H. Shaper.
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1 1¼ in. Bolt Cutter, with latest head and dies.. $185.00
1 18 in. x 8 ft. Lathe. Fair order..... 160.00
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Shapers, Drills, Chucks, &c.; large variety.
6 Double Head Polishing Lathes. New, at..... 30.00
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1 large lot 2d-hand Pulleys, Shafting, Hangers, &c. Extremely low prices.

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One 26 x 48 in. Horizontal Engine.
One pair 26 x 28 in. Blooming Mill Engines, complete.
Morgan Hydraulic Ladle Crane with Accumulator.
Two 12 to 15 ton steel ladles.
Two pair of Gordon Duplex Hydraulic Steam Pumps.
One Gordon Duplex boiler feed Pump.
One 12 x 20 in., one 9 x 16 in. and one 9 x 14 in. 3 foot guage saddle tank locomotive.
Hoisting and table Engines.
Rail, Bar, Sheet Clipping and Rotary Shears in stock.
Derricks, Cranes and Skull Breakers.
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FOR SALE (Second-Hand & New)

1 36 in. Stevens Pulley Machine. Two tools.
1 24 in. x 24 in. x 4 ft. Planer.
1 30 in. x 30 in. x 8 ft. Planer. A 1 order.
Send for prices for New Planers.
For immediate delivery:
1 24 in. x 24 in. x 6 ft. Planer. New.
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Two Durham Hot Blast Pipe Stoves, all complete, including bales, binders, chimney, &c., for delivery after October 1. Can be seen in operation at Vesta Furnace, Notts Station.

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One 6 H.-P. "Baxter" Engine and Boiler.
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Three 16 in. Upright Drills, lever feed.
One 18 in. x 8 ft. Engine Lathe. "Bishop."
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Nine Small Vertical Engines, various sizes and makes.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers
One 16 in. x 30 in. Horizontal Side Valve Engine.
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One 7½ in. x 7 in. x 10 in. Worthington Duplex Pump.

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1 Iron Planer, planes 30 ft. long, 70 in. x 60 in. double head.
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1 Planer, planes 8 ft. 30 in. x 30 in.
1 20 ft. bed 72-in. Heavy Lathe
1 16 ft. bed 60-in. Engine Lathe.
1 11-ft. bed 19-in. Engine Lathe.
1 10 ft. bed 20-in. Engine Lathe.
2 8 ft. bed 18 in. Engine Lathes.
1 48 in. Vertical Boring Mill.
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Delemater Engine, 14 in. x 28 in.
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One 100 H.-P. R. R. Locomotive Boiler, good for 100 lbs. steam.
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All in perfect order. New Boilers and Engines of all sizes. S. L. WILSON,
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Baker Blowers, Nos. 1, 2, 4, 4½ and 5½.
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Engines, Boilers, Rolls and the entire machinery of the plant, all of the latest and best construction, separately or together. Send for catalogue.

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Fly wheel of Corliss Engine, 13 ft. diameter; rim 30 inch face; eye 12 inch bore; total weight 31,700 pounds; made in 8 segments; rim turned and segments accurately fitted.

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LOW PRICES.

20 in. x 12 ft. Fitchburg Lathe.
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33 in. x 12 ft. Lowell "
1 20 in. Drill.
1 24 in. "
1 3-ft. Box Radial Drill.
1 16 x 36. Horizontal Engine. Second hand.
1 12½ x 24 " " "
1 10 x 24 " " "
1 8 x 16 " " "
16 in. x 24 Atlas Engine. New.
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1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "
1 Planer, 30 in. x 7 ft. Good order.
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SPECIAL BARGAINS.

1 16 x 42 Babcock & Wilcox Engine.
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3 Corliss Upright Tubular Boilers each 150 H.-P.
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1 Corliss Centennial Upright Tubular Boiler 50 H.-P,
1 No. 6 Knowles Steam Pump.
1 No. 2 " " "

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NOTICE OUR OFFER.

We have for sale a lot of New Iron Planers, to plane 24 in. wide, 24 in. high, 6 ft. long; weight 4500 lbs.

Guaranteed to be well made.

Net cash price each, $400.

Send for photograph.

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1 Berryman Heater, 6 ft. x 20 in. Very good.
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1 B. & S. Automatic Gear Cutter, for sewing machines, etc. Nearly new.
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1 450 incandescent Dynamo. Nearly new.
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1 6 x 12 Horizontal Engine.
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1 25 H.-P. Return Tubular Boiler.
1 20 H.-P. Return Tubular Boiler.
2 18 H.-P. Vertical Boilers.
1 24 x 20 x 7 ft. 7 in. New Haven Planer.
3 30 x 30 Cylinder Boilers (these may be used for stacks).

All of the above are in first-class condition and good working order.

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1 26 in. x 8 ft. " "
1 Crank Planer, 16 in. wide, 11 in. high, 12 in. stroke
1 31 in. x 16 ft. Screw Cutting Engine Lathe.
1 28 in. x 12 ft. " "
1 36 in. Upright Drill, back-geared, self-feed.
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1 Brown & Sharpe No. 1 Plain Milling Machine.
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1 Large Lincoln Pattern Milling Machine.
1 Set 10 in. x 6 ft. Boiler Makers' Power Rolls.
1 Set 12 in. x 10 ft. " " "
1 400 lb. Drop Hammer.
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1 Large Blake Rock Crusher, 14 x 25.
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1 13 in. Vertical Slotter.
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1 Heavy Power Punch.
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A number of small Turret Head Brass Working Lathes.
1 24 in. B. G. Self-feed Drill. New. A bargain.
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1 " " 12 " "
1 84 in. x 20 ft. Engine Lathe.
1 8-in. H. B. Smith Moulder, 3 sides.

Write us of what you want, and send description of machinery that you wish to trade or sell.

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Punching and Shearing Machinery.

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BOILER TUBES

suitable for Hot House purposes. About 12 tons, 4½ in. x 17 feet.

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24 8d Nail Machines and Patterns.
One Steam Hammer and Patterns.

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For Sale or Exchange.
Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address

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Vertical Blowing Engine, 30 in. steam cylinder, 70 in. air cylinder (Tremaine Valve), 5 ft. stroke.
Worm Hoist, 24 in drum.
Both have been used in operating a 70-ton charcoal furnace. Replaced in enlarging plant.
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1 36 in. x 36 in. x 22 ft. " " "
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1 1-in. Double Bolt Cutter.
1 Miller's Hand Drill.
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Also second-hand Punches, Shears, Blowers, etc.
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1 Large Car Mortiser and Borer.
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1 Universal Horizontal Car Borer.
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26 x 60 C. H. Brown Auto. Engine.
18 x 26 Watertown Auto. Engine
Barryman Heater, 44 in. x 14 ft. 10 in. exhaust
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150 H.-P. Locomotive Boiler.
5 5 x 16 Horizontal Tubular Boilers.
Steam Pumps of all kinds.

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One Hor. Tub. Boiler, about 50 H.-P., 48 in. diam., 14 ft. long, double riveted, (25) 4-in tubes, Wetherill & Co. make; only used 4 months, fronts, bars and linings all complete, ready to set. Smoke Stacks, Iron Tanks, all sizes, Upright and Hor. Engines and Boilers ready for use; Boiler Shells, different sizes on hand. Scrap Iron, New and Old Metals. HUSSENIUS & CUNLIFFE, 1142 Washington Ave., Phila.

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10 Wire Nail Machines, only been run a short time; will sell either all or part; also Forge, Tumbler, Sturtevant Exhaust, &c.

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To close the estate of **THE NEWHAVEN WIRE CO.**, its Wire Drawing Plant is offered for sale; the mill is now running at a profit; there are about four acres of land, a good wharf, substantial brick buildings, and machinery all in good order. For further information, address

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The Woods are Full

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MACHINERY, BOILERS, ENGINES, PUMPS, &c.

Write me for a list of them.

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For Sale.

An air hoist for a Blast Furnace, 68 ft. 6 in high, 32 in. diameter, with cages complete and in good order; about 70 hot blast pipes 14 ft. long, 7 in. inside diameter, good as new; four cinder carts.

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FOR PROMPT DELIVERY.

"Fitchburg" Engine Lathes. New patterns' extra weight and power. 14 in. x 6 ft., 16 in. x 6' 8 ft., 18 in. x 8 ft., 27 in. x 14 ft., 36 in. x 16 ft. triple geared.
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"Hendey" Engine Lathes, 14 x 6 ft., 16 x 6 ft., 18 in. x 6 and 8 ft. Plain and Taper.
"Lathe & Morse" Engine Lathes. 15 in. x 6 ft., 20 in. x 10 ft., 27 in. x 12 ft.
"Wright" Engine Lathes. 16 in. x 6 ft., 18 in. x 8 ft , 20 in. x 10 ft., 24 in. x 12 ft.
"Fitchburg" Planers. 24 x 6 ft., 25 x 8 ft., 36 x 12 feet.
"Powell" Planers. 24 x 6 ft., 30 x 10 ft.
"Lathe & Morse" Planers. 22 x 5 ft., 24 x 6 ft.
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"Fitchburg" Shaper. 14 in. Trav. Head Complete.
"Eberhardt" Shapers. 16, 24, 30 in. stroke.
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"Amer. Tool Co." new style Turret Lathe.
"Brass Lathes," Turret and Fox, all sizes.
"Upright Boring and Turning Mills," 39 in.
"Milling Machines." Universal and plain, new style.

SECOND HAND

(AT LOW PRICES).

Lathes, 12 x 6 ft., 14 x 4 ft., 15 x 4 ft., 16 x 8 ft., 18 x 6, 8 ft., 20 x 6 ft., 25 x 10 ft., 60 x 20 ft.
Planers, 26 x 8 ft., 27 x 8 ft., 32 x 12 ft., 36 x 6 ft., 42 x 12 ft
Am. Tool Co. No. 2 Cabinet Turret Lathe, A 1.
Boiler Rolls and Punch and Shears.

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J. J. McCABE,

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Second-Hand Tools for Sale Cheap.

1 in. Acme Bolt Cutter (old style frame.)
No. 4½ Schlenkler Bolt Cutter (old style) Cuts to 1¾ in.
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Double Lewis, Oliver & Phillips Bolt Cutter. Cuts to 1½ in.
National Double Rapid Bolt Cutter (old style frame).
3 Spindle Belt Nut Tapper.
12 in. Crank Planer.
Durfee & Doe Key Seating Machine.
Seller's Bolt Cutter. Cuts to 1½ in.
Seller's Bolt Cutter. Cuts to 2 in.
Seller's Bolt Cutter (with Acme head). Cuts to 1 in.
Bolt Cutter (with National head). Cuts to 1½ in.
No. 2 National Washer Machine.
No. 2 Pittsburgh Nut Machine. For ¼ in. to ¾ in. nuts.
Chapin Bolt Header.

THE NATIONAL MACHINERY CO.,

Tiffin, Ohio.

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A Corliss Upright Steam Engine, 40 in. cylinder, 42 in. stroke, with 40 ton fly wheel, made by Corliss. Also a train of 24 in. Rolls for rolling Steel Plate 16 in. down to 16 gauge; the housings are heavy enough for a three high 30 in. train; they were made for a 30 in. Blooming train; both engine and train are in first-rate condition, and can be seen at the Old Norway Steel and Iron Works, South Boston; any communication addressed to THOS. GOGIN, 61 Thomas Park, South Boston, will have prompt attention.

FOR SALE. BLOWING ENGINE.

Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address
JAMES LEFFEL & CO.,
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WANTED.

Scrap brass, brass turnings, copper &c.; please advise quantity, condition, point of delivery and bottom price, when will put you in communication with buyer.

H. H. MANSFIELD,
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FOR SALE —One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address
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READ—WRITE.

When in want of supplies advise what and writer will name bottom figures, also put you in communication with manufacturer or dealer; to ascertain object of this advertisement write to

H. H. MANSFIELD,
52 Wall St., New York.

FOR SALE, SECOND HAND.

We have several second-hand Berryman Feed Water Heaters, all in good condition, which have been replaced by larger heaters of same make; we have also a number of heaters of various makes and sizes taken in exchange for Berryman heaters, which we will sell cheap; Feed Water Heaters bought, sold or exchanged.
BENJ. F. KELLEY & SON,
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SCRAP DEALERS.

Am instructed to sell for scrap a 24 ton saddle tank locomotive, Grant, 15 x 20. Make offer per ton to H. H. MANSFIELD,
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Blast Furnace Machinery!!!

EXCELLENT OPPORTUNITY!!

FOR SALE.—One I. P. Morris Blowing Engine, 84 in. stroke, 42 in. steam cylinder, 90 in. blowing cylinder. In perfect order.
One West Point Blowing Engine, 84 in. stroke, 40 in. steam cylinder, 90 in. blowing cylinder.
One Crane Bros. Steam Hoist, complete with iron frame, 8 in. cylinder, 9½ in. stroke, 36 in. drum with 14 in. face.
Parties wishing duplicate engine for their blast furnace or others about to build a blast furnace could not have a better opportunity than the above. All in perfect order. Can be seen at any time. Address
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FOR SALE CHEAP, 26 in. Plate Mill; Rolls 92 in. long; all in good order. For information apply to

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Mining Machinery.

FOR SALE—Ingersoll Air Compressor, 14 in. x 24 in.; Air Receiver, 4 ft. x 12 ft.; Drills, 3 in.; Double Friction Hoisting Engine, cylinders 10 in.; Pumps, one Worthington, 12 x 6 x 10 (good as new); Boilers, Pipe, Tools, &c., &c.; all in first-class condition and to be sold. Address
"MINER,"
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A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address.
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To anyone who wishes to purchase for their own use.

1 Pease Planer, to plane 24 in. wide, 22 in. high and 6 ft. long.
1 25-Light Dynamo for Incandescent Lights.
DANIEL KELLY,
51 North 7th St., Philadelphia, Pa.

THOMPSON C. GILL & CO.,

210 S. Third St., - Philadelphia, Pa.
Dealers in all kinds of

SCRAP IRON, &c.

Correspondence Solicited.

For Ship Building or Tin-plate.

300 to 750 feet front on Delaware River, 1000 feet deep, including well equipped machine shop, foundry erecting shops, pattern shops, brass foundry and store room; will sell or join company to increase business in any direction, no better location on Delaware River; also R. R. facilities. For plans &c., apply to
W. G. HOWELL,
3343 North 17th, St., Philadelphia.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

For Sale or Lease.

A Rolling Mill in the city of Chicago, well equipped and located for city trade. Capacity of about 100 tons of bar iron per day. It has one 10 in. and one 18 in. train, also one 18 in. muck train. Owners will take all or part of pay in bar iron. For particulars address
"ROLLING MILL,"
office of *The Iron Age*, 59 Dearborn St., Chicago.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot, unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.
WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

BARGAINS

In Second-Hand Machinery.

2 65 H.-P. Boilers. Nearly new.
1 25 H.-P. Boiler. " "
2 Hoisting Engines. " "
1 lot of Wood Working Machinery.
1 No. 2 Farrell Foundry Press.
1 No. 4 Farrell Foundry Double Cam Press.
1 2 H.-P. Marine Engine.
1 Pair Jeweler's Rolls.
1 Small double action Press.
1 Small foot or power Lathe.
1 36-in. Band Saw.
Drop Hammers, Boiler Shells, &c. Send for prices to
M. E. KEELEY,
44 Meadow Street, Waterbury, Conn.

"THE MAISON BEER,"

Mechanical Engineers, at Jemeppe (Liege), Belgium, wishes to introduce in the United States its patent

WIRE ROPEWAY,

and solicits correspondence with some prominent American firm for sale of the patent.

WANTED.

15 in., 18 in., 24 in. and 30 in. lathes, 2 planers, 2 drills, 2 shapers, 1 Fox lathe and 1 Boring Mill for cash and houses paying 10 per cent,

ISAAC GRAHAM,
1302 N. 28th St., Philadelphia.

FOR SALE.

MACHINE SHOP fitted for manufacturing purposes and repair work; 2 floors 28 x 48, well lighted; possession immediately. Address
"MACHINE SHOP,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

Philadelphia, November 8, 1890.

Notice is hereby given that the firm of

JOHN L. HOGAN & CO.

was this day dissolved by mutual consent. John L. Hogan will act as liquidating partner.

JOHN L. HOGAN.
ARTHUR W. HOWE.

Late trading as **John L. Hogan & Co.**

John L. Hogan will continue the business of Iron Commission Merchant, under the old name of John L. Hogan & Co., at the old offices, Rooms Nos. 229 and 231 Bullitt Building, Philadelphia.

Arthur W. Howe will continue business of Iron Commission Merchant at No. 607 Drexel Building.

WANTED.

Lot of light second-hand T Rails, suitable for relaying. Address

BOX 261,

Metuchen, - - - - New Jersey.

FOR SALE.

Manufacturing Plant suitable for Foundry and Machine Shop or most any manufacturing business; 3¼ acres of ground, new buildings, engine 20 x 42, boilers, shafting, pulleys, hangers, natural gas in abundance, railroad switch into buildings. For full particulars address

"O. R. S.,"

Box 878, Pittsburgh, Pa.

MACHINE SHOP

In Brooklyn for sale; now in operation with tools of best make in first-class order; established over 5 years; well located on Kent Avenue Address "A." 1368 Pacific St., Brooklyn, or H. HOWSON, 38 Park Row, N. Y.

TO MACHINERY BUILDERS.

Valuable device for shaft bearings; U. S. and English patents for sale very low. No agents.

BOX 592.

Bath, Maine.

ESTABLISHED BUSINESS

FOR SALE.

A Rare Opportunity.

A clean stock of Hardware, House-furnishing Goods, Builders' Hardware, Stoves and Tinware; in a thriving town in Southern New York; only Hardware store in the place; excellent stove trade; business built up and in a healthy condition; established 10 years under present management. Total business this year about $30,000, with good profits; stock will invoice about $6000; good reasons for selling. A splendid opportunity for parties with push and ability. Write at once to

"GOOD BUSINESS,"

office of *The Iron Age*, 66 and 68 Duane st., N. Y.

FOR SALE.

A quarter interest in the largest hardware establishment in a growing Western city of nearly 100,000 inhabitants, doing a business of $250,000 annually. Address

"2943,"

office of *The Iron Age*, 66 and 68 Duane street, New York.

FOR SALE.

Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock. $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

Address "BEST,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
338 and 342 E. 7th St., St. Paul, Minn.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA."

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.
THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

FOR SALE.

$5000 stock of Hardware, Lumber and Stoves, with good business established in centre of Southern Illinois fruit belt.

T. B. RHODES, Anna, Ill.

FOR SALE.

On account of poor health I wish to sell at once, to the party making me the best offer, my stock of builders' and general hardware, tools, paints, oils, &c. Business has been established nearly six years; have two exclusive agencies on builders' hardware which bring good sales and large profits; stock invoices about $6000; yearly sales $17,000; expenses very low; located in Newark, N. J. Address JOHN A. CLARK, 85 Springfield Avenue, Newark, N. J.

FOR SALE.

A half interest in an established and well paying business handling Pig and Bar Iron, Steel and Cast Pipes, with headquarters at Nashville, Tennessee, and having an established trade in the states of Tennessee, Georgia, Mississippi, Alabama, Florida, North and South Carolina and Texas. Will sell only to a man who thoroughly understands this line of business and who can furnish satisfactory credentials as to character, ability, &c. For further particulars address "FACTOR," office of *The Iron Age*, 66 and 68 Duane St., New York.

ONE OR TWO GENTLEMEN

TO PURCHASE

President's $70,000 interest Incorporated Manufacturing Company. Seller will loan company $100,000 to increase business if desired.

"A. L. B.,"
Carrier 22, Buffalo, N. Y.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

PATTERNS FOR SALE.

Assorted Brass Patterns for use in manufacturing light hardware; also four (4) Japan Ovens complete with shelves. Write for particulars.

NATIONAL BOLT, NUT & RIVET WORKS,
P. O. Box 243, Reading, Pa.

Free Land, Gas (Fuel), fine R. R. Facilities

to a responsible factory wanting to change and better its location. One Cincinnati Factory saves $125 per day by moving, 10 per cent on $390,000 invested. Address

PHILETUS EYCKE,
Washington, C. H., Ohio.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

60-INCH LATHE WANTED AT ONCE.

FOSDICK & PLUCKER,
SIXTH and CULVERT STS., CINCINNATI, OHIO.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

What Have You You Want Sold?

A thoroughly practical business man, who will start on a business trip through the South and Southwest about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address

"TWO-THIRDS,"

office of *The Iron Age*, 66 and 68 Duane st., N. Y.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

135 ACRES OF LAND

in Wyandot County, Ohio, to exchange for a Stock of Shelf Hardware in Ohio. Address

A. J. FREDERICK,
Carey, Ohio.

16 lb. RAILS.

For sale lot of 16 lb. and Light T Rails, fit to relay. Inquire MATTHEW GILL, Jr., 308 Walnut Street, Philadelphia.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO
WHOLESALE
HARDWARE AUCTIONEERS,
19 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
Commerce Street, Philadelphia, Pa.

FOR SALE.

The controlling interest in one of the largest and best equipped Pocket Cutlery Manufactories in the United States. Water power and an engine if neccessary by reason of accident. Address

"POCKET CUTLERY,"

office of *The Iron Age*, 66 and 68 Duane St, N.Y.

WANTED TO BUY.

Pratt & Whitney No. 1 screw machine; Pratt & Whitney No. 1 six spindle gang drill; Pratt & Whitney No. 2 power milling machine with sliding tail stock; Pratt & Whitney 13 in. engine lathe, 10 in. hand lathe; quote net cash prices.

LEFEVER ARMS CO.,
Syracuse, New York.

WANTED.

Competent and Reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
21 Grand Ave., Brooklyn, N. Y.

FOR SALE.

The Rolling Mill Property recently operated by James Rowland & Co., situated on Delaware Ave., above Poplar St., Philadelphia. The property consists of three large lots, including a Wharf, Brick and Frame Buildings; Valuable Machinery in good running order, including 4 trains of Finishing Rolls, 8 in., 12 in., 15 in. and 18 in.; Steel Plate Mill, Nail Mill, 11 Double Puddling Furnaces, 6 Heating Furnaces, Sidings, Artesian Wells, &c., For further particulars apply to R. HECKSCHER & SONS, or at the office on the premises, 920 N. Delaware Ave., Philadelphia.

FOR SALE.

Hematite Iron Ore property on Harlem Railroad, three hours' ride from New York, well developed, in working order; ore especially fit for car-wheel iron. Address GEO. R. WOOD, 53 Broadway, Room 35, New York.

CHEAP BEFORE REMOVAL.

1 50 H.-P. Sotter Bros. R. T. Boiler, 48 in. x 16 ft.; safe working pressure, 90 lbs. allowed; complete with full fronts and all attachments; only slightly used.

L. F. SEYFERT'S SONS,
437-441 N. 3d St., Philadelphia, Pa.

WANTED.

A manufacturers' agent in New Orleans or some city in the Southwest to sell our goods to the wholesale trade in that territory. Address, giving reference and commission wanted,

SLAYMAKER, BARRY & CO.,
Diamond Lock Works, Lancaster Pa.

NOTICE to Manufacturers and Dealers in Hardware. If you have any good specialty for which you would like to establish an agency, or a surplus stock of goods, please address

JOHN SEYMOER,
113 W. 6th St., Cincinnati, O.

FOR SALE.

In a very pleasant town in New York, a well established and thriving Hardware business; store is conveniently built for the Hardware trade; sickness necessitates this move. Address STILSON & DIBBLE, Franklin, N. Y., or C. A. DOUGLAS, Middletown, N. Y.

FOR DISPOSAL, the following patents: Automatic Stop and Lock for Elevators; Combined Kitchen Knife and Apple Corer; Display Stand for Bonnets and Hats. Send for list of patents. FRANK W. LOWE, Box 2294, Boston, Massachusetts.

WANTED.—Superintendents of Foundries to introduce on commission a process which insures better product and a guaranteed saving Correspondence confidential. Address

BOX 718,
Chicago, Ill.

WANTED.—A partner with from $10,000 to $25,000 in one of the most completely equipped machine shops in the New England States; worth not less than $60,000; situated near the borders of New York, Massachusetts and Vermont; the shops are completely equipped for the heaviest work, and abundance of custom orders and special machinery work may be depended on; a handsome partnership interest will be given—one half for the full amount asked for; partnership to continue for 3 or 5 years; for full particulars. Address "FANNING," office of *The Iron Age*, 66 and 68 Duane St., New York.

WANTED.—An experienced and competent man to take my half interest, amounting to seven thousand ($7000) dollars, in a successful and well paying Hardware Store in one of the most progressive cities in Western Washington. This being but a small part of my interests in this city, and the others requiring my whole attention, I want to turn over my interest to a man who can sustain the well established reputation the house now enjoys.

Full particulars given upon inquiry accompanied with first-class references, (bank references preferred)

Address
"HARDWARE,"
P. O. Box 380, Seattle, Washington.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9¼ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,
PORTLAND, OREGON.

EXTERIOR VIEW OF

GIES & CO'S

Lithographing, Printing AND ENGRAVING ESTABLISHMENT.

SPECIALTIES,
CATALOGUES, PAMPHLETS, POSTERS.
FOLDERS, BOOK COVERS.
WOOD ENGRAVING & ELECTROTYPING
LITHOGRAPHED STATIONERY.

THE MOST COMPLETE CONCERN OF ITS KIND IN THE COUNTRY.



MAIN BUILDING.

BASEMENT, STOCK ROOM AND SHIPPING DEPARTMENT
1ST FLOOR, OFFICE AND STOCK ROOM.
2D " DESIGNING AND ARTISTIC DEPARTMENT.
3D " COMPOSING ROOM AND WOOD ENGRAVING DEPARTMENT.
4TH " ELECTROTYPE FOUNDRY, DRYING AND STORE ROOMS.

DEPARTMENTS

REAR EXTENSION.

1ST FLOOR, BOOK AND JOB PRINTING DEPARTMENT.
2D " LITHOGRAPHIC PRINTING.
3D " STATIONERY PRINTING AND TRANSFERRING DEPARTMENT.
4TH " BINDERY AND BLANK BOOK DEPARTMENT

Buffalo, N. Y.

J. B. LIPPINCOTT COMPANY,

PHILADELPHIA.

SOLE AGENTS FOR

SOAPSTONE SLATE - - PENCILS

—MANUFACTURED BY THE—

Monticello Soapstone Slate Company,

Charlottesville, Va.

Send for Samples and Prices.

WEST'S MOULDERS' TEXT BOOK

BEING PART II. OF AMERICAN FOUNDRY PRACTICE,

Giving the best methods and rules for obtaining good castings, with detailed description for making moulds. A thoroughly practical book that should be in the hands of every moulder.

PRICE, - Cloth, - 460 Pages, - - $2.50.

Sent, postpaid, to any address on receipt of the price, by

DAVID WILLIAMS, Publisher and Bookseller, 66 & 68 Duane St.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A MAN of 30 years' experience as Superintendent would like to have a situation; knows all about mining and separating ores and erecting machinery; 4 years superintending charcoal furnace; 14 years at one place; had charge of 50 to 90 men; no objection to go outside o f Pennsylvania; first-class references. Address "SITUATION," Box 52, Fleetwood P. O., Berks Co., Pa.

I WANT another good line, either in Hardware or Cutlery, to represent in Texas and Arkansas, on commission only; only houses that can work large trade wanted; houses having Chicago or Western shipping facilities preferred. If you want your goods pushed and are prepared to pay good commission for doing it, address "TEXAS," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A FIRST-CLASS machinist, as foreman or any responsible position where ability will count; experienced in building marine and stationary engines, hydraulic machinery and rolling mill work; can handle men to advantage and good draughtsman; vicinity of New York preferred. Address "ENERGETIC," Box 40, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A PRACTICAL man having 30 years' experience in the manufacture of Locks and Builders' Hardware desires position as superintendent of factory manufacturing this line of goods; is a locksmith by trade and familiar with all the details of the business; understands brass and iron founding, can handle men and material in an economical manner; 20 years experience as superintendent; good references and recommendations. Address "D. S. T.," office of *The Iron Age*, 66-68 Duane St., N. Y.

GRADUATED MECHANICAL ENGINEER, ten years' experience in machinery for manufacture of iron and steel, and who has made a specialty of heavy hydraulic machinery, will shortly be open for engagement. Has had complete charge of design and erection of hydraulic forging plants and is at present occupied in such a capacity at large iron works. Parties wishing to correspond, address "HYDRAULIC," office of *The Iron Age*, 220 So. 4th St., Phila., Pa.

POSITION as Superintendent of a Rolling Mill; have had 16 years experience on the different kinds of mills; am practical in the different branches of rolling mill work, and thoroughly understand the system of regenerative gas furnaces and producers. References as to character and ability. Address "ROLLING MILL," office of *The Iron Age*, Hamilton Bldg., Pittsburgh, Pa.

ENGINEERING KNOWLEDGE, ABILITY, broad experience in the foundry and machine business, and in manufacturing and construction, draughting, estimating costs and prices, correspondence, and a reliable, energetic nature, are the qualifications possessed by a thoroughly competent Mechanical Engineer with experience and capacity to fill a responsible position. Address "EXECUTIVE QUALITIES," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A YOUNG MAN, 16 years' experience in General and Builders' Hardware, good Salesman, best of references as to business ability and moral character, would make connection with a good house in a live growing city, where a small amount of capital will obtain an interest in the business. Address "PROMOTION," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, pipe mill machinery, engines and boilers, roof construction, sugar machinery, &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN thoroughly familiar practically with the manufacture of malleable iron castings; also the erection of plant in all its details; and of strictly temperate habits, desires a position as Superintendent or Manager of works with some good firm; been handling men 12 years. Address "DANE," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN who has sold Hardware in the West for past 15 years wishes a position as traveling salesman in the extreme Northwest for some large manufacturer. Address "EXTREME," office of *The Iron Age*, 66 and 68 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as Superintendent of Steel Plant; have had 6 years' experience in Beam and Plate Mills at Homestead as Roller and Superintendent of Department; have worked both Bessemer and Open-Hearth steel for four years, also Basic Open-Hearth for 2½ years. Address "BEAM" office of *The Iron Age*, 66 and 68 Duane St., New York.

A STEEL AND IRON Salesman of 10 years' experience desires to make an immediate change; has good trade and extended acquaintance with dealers and consumers, large and small, in New England, New York, New Jersey and Eastern Pennsylvania; best of references. Address "S. & I. SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON." office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

AS SALESMAN, by a party who has worked in Ohio Trade for five years; wishes to change his line; would prefer Cutlery from American manufacturers, Hardware Specialties or similiar line; good references; state salary paid and other particulars. Address "A SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

A YOUNG MAN of character, ability, good address, who is at present employed as accountant for a large Eastern Manufacturing Co., will soon be open for an engagement of responsibility and trust; is thoroughly familiar with the science of accounts and quite familiar with manufacturing business, but would prefer a more active occupation than that of accountant. Address "TRUSTY," office of *The Iron Age*, 66 and 68 Duane St., New York.

A BRICKLAYER desires a situation as Foreman in a Rolling Mill; has had several years' experience in building and rebuilding regenerative and open-hearth furnaces and all other repairs, and also understands the nature and making of artificial gas; references can be had where last employed. Address C. WEBSTER, Eighth Ave., Beaver Falls, Pa.

AS SUPERINTENDENT of Blast Furnace, by a practical man of experience in operating and burdening furnaces, including all chemical work; can take hold in any position; best of references. Address "HOT BLAST," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

OPEN to engagement for 1891, a gentleman aged 48; has had twenty years' successful business experience, largely as commercial traveler, mostly to wholesale trade; also experienced in Insurance, Real Estate, Conveyancing Titles, &c.; A1 reference as to character and ability; only positions paying $2500 to $3000 will be considered. Address "STRICTLY BUSINESS," Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A GENTLEMAN, 35 years of age, controlling a large Hardware trade in Middle and Western States among Jobbers and Retailers, would like to take entire charge of the sales of a manufacturer; his record shows he is a hustler and can build up a large business; 15 years' experience, 9 years at traveling; best of references. Address "HUSTLER," office of *The Iron Age*, 66 and 68 Duane St., New York.

TO SHEET BRASS MANUFACTURERS.—A man with twenty two years' experience in the sheet brass and copper manufacture desires to connect himself with an established works as superintendent; has had thorough experience in the detail and management of all the departments of rolled sheet brass manufactures; he has studied the economies and mechanical problems connected therewith, he can give the best of recommendations as to his qualifications. Address "MANAGEMENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as superintendent of wire nail and wire mill, rolling mill or tack factory; 25 years' experience in building, erecting and superintending above branches. Will guarantee unexceptional testimonials, and build the best machinery in the U. S. for entire outfit of above mills. At present superintendent of large mills. Address "SMITH," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as Secretary and Treasurer of an Iron and Steel Co.; have received a thorough technical education; have 10 years' practice in management of iron and steel works, and 10 years' experience of importing iron, handling considerable amounts of money and being thoroughly familiar with the market; can give the best references. Answer to "PIG IRON," Box 18, office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MARRIED MAN who has had ten years' experience at bookkeeping, labor accounts, cost sheets of jobs, &c, in general machine shop, boiler shop and foundry business; thoroughly reliable and acquainted with the business, clerically, in all its details. Address "CLERICAL," office of *The Iron Age*, 66 and 68 Duane street, New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

CLERK.-A young man with experience to clerk in Hardware and Paint Store; must write a good business hand and be quick at figures and live in Jersey City. Apply WOOD & MENAGH, 138 Newark Avenue, Jersey City, N. J.

SUPERINTENDENT for a large machine shop foundry and boiler works in Eastern Pennsylvania; an experienced mechanical engineer who is familiar with blast furnace and rolling mill work and one competent to assume entire charge of the plant preferred; all communications will be treated confidentially. Address "E. PENNA.," office of *The Iron Age*, 66 and 68 Duane St., New York.

SALESMAN wanted by a large firm manufacturing every variety of tinware and jobbing housekeeping goods; only those having the highest qualifications and an extended acquaintance with the trade need apply. Address "HOUSEKEEPING," office of *The Iron Age*, 66 and 68 Duane St., New York.

MECHANICAL DRAUGHTSMAN wanted on small tools. Apply to or address THE YALE & TOWNE MFG. CO., Stamford Conn.

A FIRST-CLASS Machinist on general repair work. Address "GENERAL REPAIRS," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BY A MANUFACTURING Concern, a thoroughly experienced business man, to assume a r sponsible position calling for energy, tact and unusual qualities as a salesman; one familiar with the leading cities preferred. Address, with full particulars, salary, &c., "S. B.," Box 64, office of *The Iron Age*, 66 and 68 Duane St, New York.

TWO EXPERIENCED Mechanical Draughtsmen. Apply to
THOMSON ELECTRIC WELDING CO.,
Lynn, Mass.

AN ACTIVE MAN as Superintendent by a manufacturing company in railway line; must be thoroughly familiar with the best practice in manufacturing both in wood and iron; the plant is of good size, modern and splendidly equipped and the business is growing rapidly; the opportunity is a rare one for a first-class man. Address
"RAILWAY,"
office of *The Iron Age*, 66 and 68 Duane Street, New York.

THREE first-class salesmen; must be men of ability, thoroughly understanding iron, steel, heavy hardware and wood stock business, with Western trade Address, with references, experience, &c., "WOODSTOCK" office of *The Iron Age*, 66 and 68 Duane St., New York.

AN EXPERIENCED Salesman who is acquainted with the Railroad, Contractors', Machinists', Miners' and Mill Supply business, to travel South, state salary expected, give reference, age, if married or single. Address Box 488, Richmond, Va.

ONE first class mattress wire tinner, also two fine wire drawers; good pay to right parties. Address "TINNER," Lock Box 112, Lockport, Ill.

STEEL SALESMAN wanted to travel in New York, Connecticut and New Jersey for an old established house; one who has a large acquaintance with dealers and consumers in bar and sheet steel more particularly of the best grades. Address, with references, "FINE STEEL," Box 39, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

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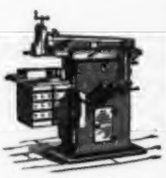
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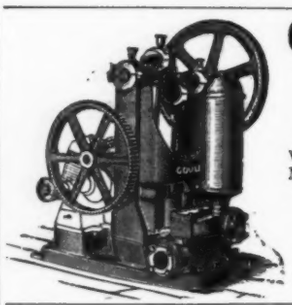


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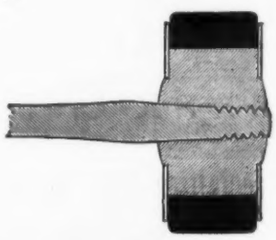
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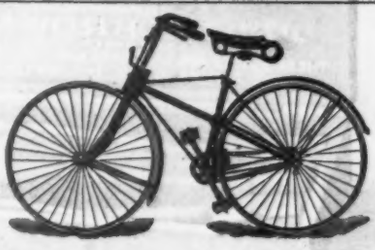
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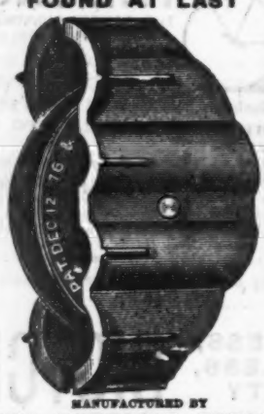
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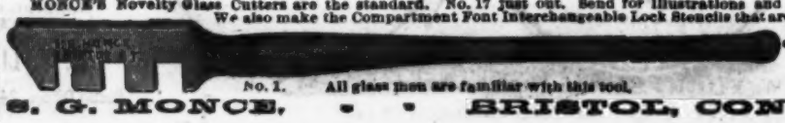
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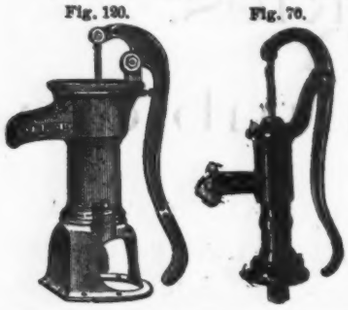
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Fig. 209. Fig. 881.



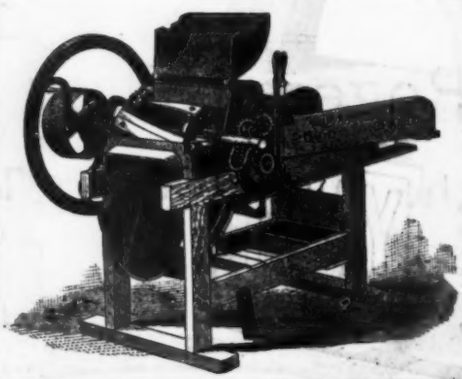
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Simple, durable, powerful, easy to operate never affected by frost. **Patent GLASS VALVE,** will never corrode. Ask your dealer for our goods. Write for catalogue.

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The Ohio Ensilage and Fodder Cutter.

A complete line of machines, embracing ten sizes for hand and power. Carriers furnished with all power sizes when ordered.

SIMPLE, DURABLE AND EFFICIENT.

We also manufacture Meat Choppers and Stuffers, Lard and Tallow Presses, Blacksmiths' Drills, &c., formerly made by Silver & Deming Mfg. Co.

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PUMPS

Wind Mill Pumps, Hand and Power Rotary Pumps,

Hydraulic Rams,

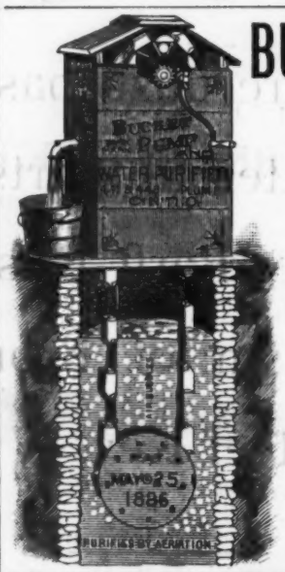
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For Wells and Cisterns of any Depth.

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It will draw ten gallons of water per minute.
Never has to be packed, primed or thawed out.
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No iron tubing to rust or burst. No suckers or valves to wear out.
It has no wooden tubing to wear out, decay or pollute the water.
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It is the simplest and most durable structure made for raising water.
It can be set up in 15 minutes, as there is nothing to fasten below the platform.
It will not freeze, having stood the test of a Dakota winter, 38 degrees below zero, as the buckets discharge themselves.
Has no leather, rubber or wood in contact with the water to contaminate it.
You do not have to pump out a pailful of water to get a fresh, cool drink for every bucket goes down full of air to the bottom and fills with cold water as the air escapes.

BUCKET PUMP CO.,

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EXCLUSIVE AGENCIES GIVEN.

Beware of infringers. No perfect working Pump can be made on this principle without infringing on our patents.

ENTERPRISE SPECIALTIES

New Champion Force Pump.

With vacuum and air chambers, brass cylinders and brass valve seats—continuous discharge—working parts readily accessible.



Reversible Float Valve For high or low pressure. Positive in action.

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Discount on application.

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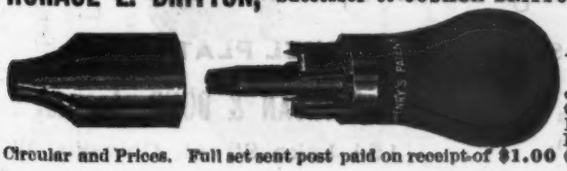
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Invaluable to carpenters, cabinet and pattern makers. Send **$8.25** for a set (3-8 to 21-8) in fine cloth case, or **50 cts.** for 4-8 sample, mailed free.

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containing six Brad-Awls, one Chisel, Screw Driver, Diamond Point Awl, Marking Awl, Tack Puller and Reamer. Send for Circular and Prices. Full set sent post paid on receipt of **$1.00** (no stamps).

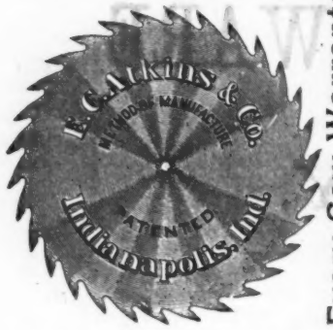


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We were the first to introduce the best grade of Saws, among which are the

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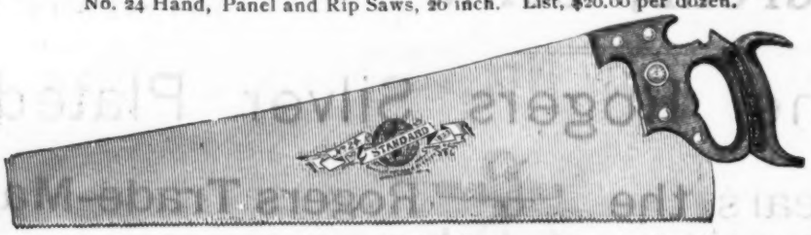
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Extra Thin Back.
Patent Handle.
Hollow-Back Blade.



Perfect Temper.
Elegant Finish.
Superior Filing.

This is the best and cheapest saw made for the mechanic's use. It is fully warranted and will outlast any other saw on the market

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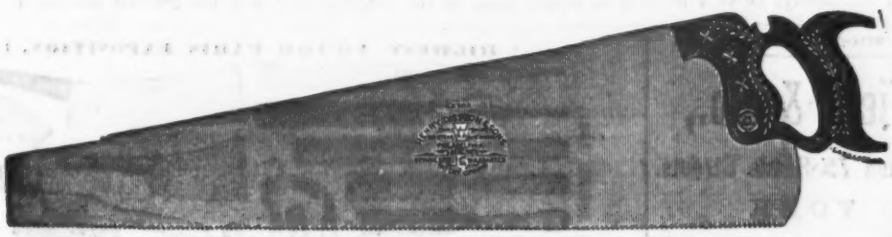
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This Saw combines all the valuable improvements in Hand-saws that have been made by us of late. The first and most important is the hollow or skew-back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

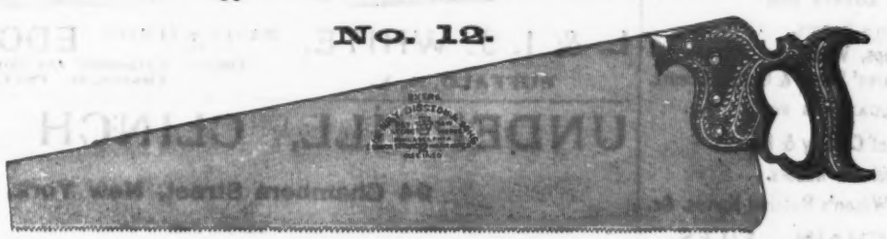
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AN EXTRA FINE SAW IN EVERY RESPECT.

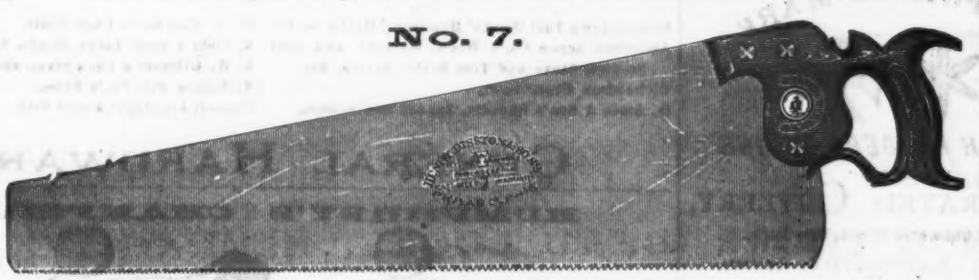
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Have established and maintained their reputation, for superiority, against all Competitors, from

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BUTCHERS' KNIVES, BUTCHERS' STEELS AND SHOE KNIVES.

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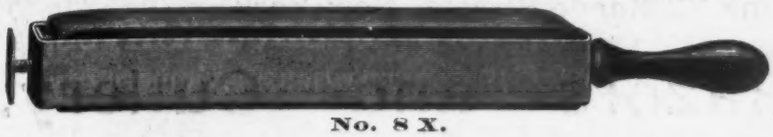


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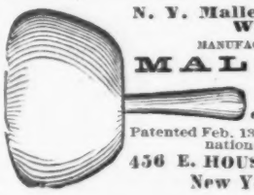
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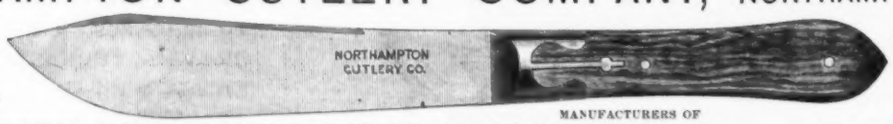


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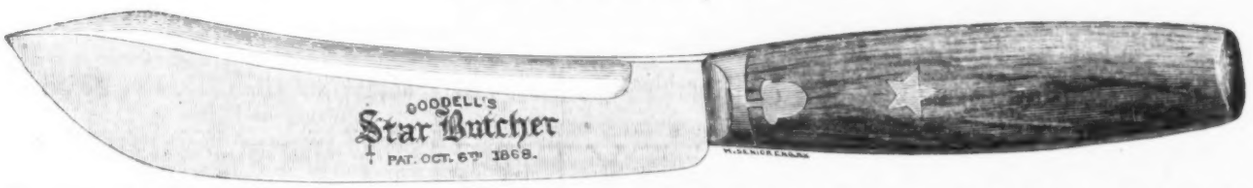
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Shot, - $1.60 per bag.
Ton Lots, 1.50 "

Less 5c a bag for cash on receipt of bill.

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TORREY'S PLUSH LINED SAMPLE ROLLS

WILL LARGELY INCREASE CUTLERY SALES.

GOODS WELL DISPLAYED ARE HALF SOLD.



TRAVELERS ARE PROUD TO SHOW THEM.

SAMPLE ROLLS OF EVERY DESCRIPTION.

PLUSH AND CHAMOIS COUNTER MATS.

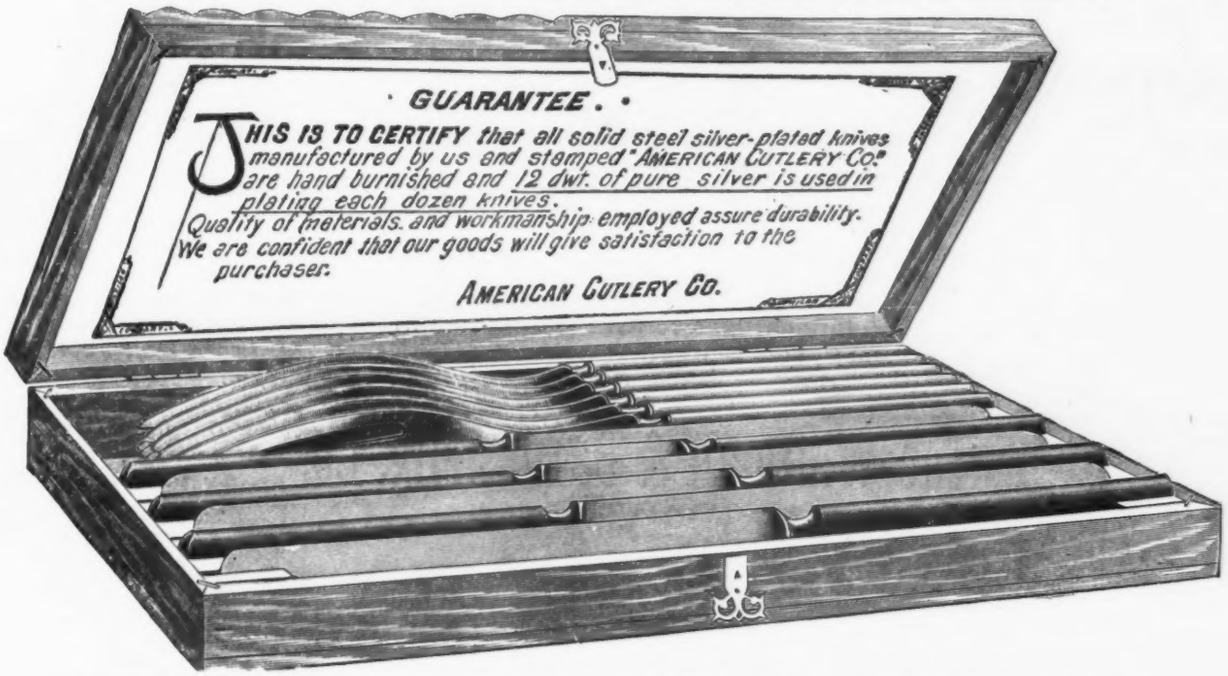
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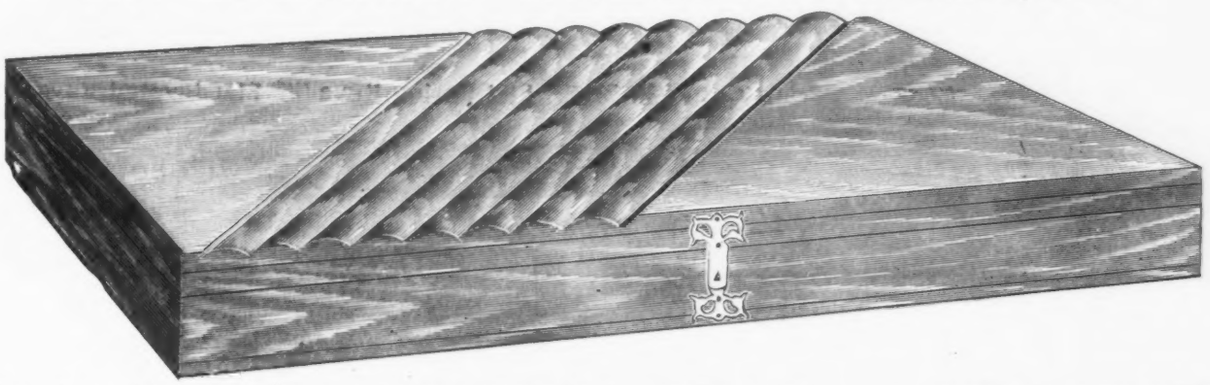
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The above illustrates one set of **PLATED KNIVES** and **FORKS**, ½ Doz. each, **PACKED IN FANCY CARVED HARDWOOD BOX. NO EXTRA CHARGE FOR BOX.**

These knives are made in one piece from finest crucible steel, well forged and evenly tempered by the latest improved process, and specially ground and polished for silver plating. Twelve (12 DWT.) pennyweight of pure silver is used in plating each dozen, and every part of each knife is hand burnished by experienced workmen, rendering plating hard and durable. Our sales of these Silver Plated Knives and Forks during the past year, and the growing demand for them, are assurances that their worth is known; a TRIAL will convince you that we have not overrated them.

Take advantage of our low prices and send us your orders early, on account of the

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PETER WRIGHT PATENT SOLID WROUGHT

Fac-Simile of Trade-Mark.



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PETER WRIGHT'S SOLID WROUGHT **ANVIL**

Made of Best Scrap Iron!

THE BICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

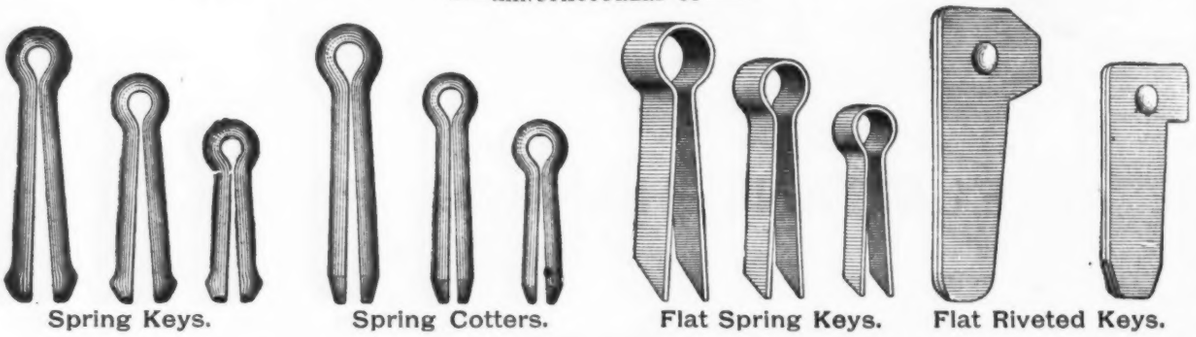
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Cellar Box Cotters.

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If you want a level that you can retail for fifteen cents, 12 inches long, cherry finish, send for prices to

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COLBY VENTILATORS

MANUFACTURED BY
The Colby Hardware & Electric Co
37 CLARK ST., CHICAGO, ILL.

WRITE FOR PRICES AND CIRCULARS.

SPECIAL AGENTS WANTED IN EVERY TOWN.

STATE RIGHTS FOR SALE.



THE QUEEN ANNE SCREEN CO., of Burlington, Vt.

MANUFACTURERS OF

Improved Adjustable Window Screens.

THE QUEEN ANNE. With box panels; the only screen made and finished alike on both sides.
THE EUREKA. The best cheap extension screen on the market.
SCREEN DOORS. Finished all ready to hang. Sticks Corners, Improved Frames, &c.

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——MANUFACTURERS OF——

Standard Brace Wrenches, Adjustable Hollow Augers, Bell Hanger Bits, Bit Gauges, Coopers' Shaves, Wood Handled Screw Drivers, Parlor Door Hangers, Washer Cutters.

THE CINCINNATI TOOL CO., Cincinnati, Ohio, U. S. A.

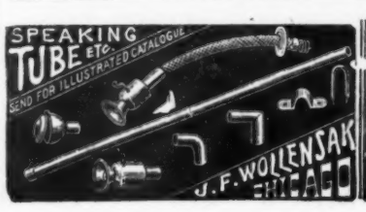
THE "EASY" BOLT CLIPPER.



MANUFACTURED BY
H. K. PORTER,
66 & 68 Beverly St., Boston.

For Sale by the Trade Generally.

Send for Circular No. 20.





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THE World's Headquarters FOR



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WHETSTONES, OIL-STONES,
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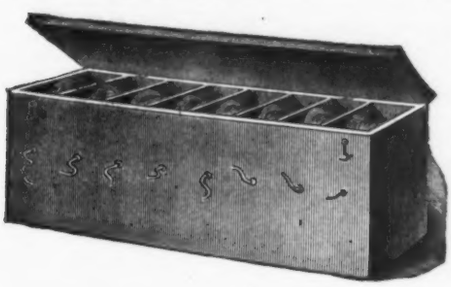


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EDGE-TOOLS.

If you **want the best Scythe-stones** buy the following celebrated brands:—The **"Indian Pond Red Ends,"** which have been made for about 70 years, and the sale of them extends to-day all over the world, and the demand for this stone exceeds all others. They are quick cutting, strong and do not glaze. The **"Lamoille Scythe-stone"** is also well-known, and has the reputation of being the best stone in the world to give a keen, smooth edge. The **"Black Diamond Scythe-stone"** is of the same grit, but superior finish, and is the handsomest scythe-stone in the market. The **"Ragg," "Willoughby Lake." "Green Mountain," "Diamond Grit," "White Mountain," "Farmer's Choice,"** and **"Extra Quinnebaug"** are all choice stone, coming from the best quarries which have been discovered in long years of effort and experience. These stones are carefully selected and handsomely packed and are sure to sell with satisfaction and profit.



THIS is our Patent Spool Box and is indispensable to the retailer. It contains eight sizes of wire picture cord, of any kind desired, on spools of 100 yds. each. Any length may be measured and spools can be replenished at any time. The cord is sold at regular market prices and the box is Gratis. Write for catalogue.

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MANUFACTURERS OF

Wire Picture Cord, Wire and Cotton Sash Cord and Clothes Line, Spooled Wire in Iron, Brass and Copper.



P. J. CONROY & CO.
Paschall, Philadelphia.

—THE—

"Conroy" Refrigerator Door Fasteners.

LIGHT BRASS CASTINGS

MADE TO ORDER.

Pat. Dec. 15, '85.

MADE OF WOOD JESSE JONES & Co.

HARDWARE SHELF BOXES

NO SCREWS OR NAILS USED TO WORK OUT AND CUT YOUR SHELVING

615 COMMERCE ST. PHILA.

SEND FOR CIRCULAR AND LIST OF ATTACHMENTS

LIGHT YOUR DARK SHOPS CHEAPLY.

Give your men plenty of Light and they will do double work.



The Wall Torch has been used for several years as a means of illumination in **Mills, Foundries, Machine and Car Shops, Tunnels, Street Stands, Band Stands, Smith Shops,** etc.

While there are many cheap, inferior torches made which injure the sale of a good article, and condemn the **Torch** in general, our "Incandescent" Wall Torches are recognized as the best, and are now in use in the largest manufacturing establishments in the country giving **PERFECT SATISFACTION**, as is evidenced by the **DUPLICATE ORDERS** we receive from year to year.

They burn 150° Coal Oil, or 74° Naphtha, requiring a different burner for each.

In ordering be careful to state which is desired.



Price, for Single Torch, complete, $2 each.

SPECIAL PRICE QUOTED FOR QUANTITIES

THE STANDARD LIGHTING CO.,

100 to 118 Perkins Ave., - - - - Cleveland, Ohio.



RELIABLE

Torches,
Furnaces,
Paint Burners.

TORCHES to burn Gasoline and Oil. **500,000 in use.** Not affected by wind or weather.

GASOLINE FURNACES for plumbers' and tinners' use. Powerful flame. Removable melting pot. Wind does not affect them.

GASOLINE PAINT BURNERS. Steel bodies. Light and strong. Adjustable burner. *All Goods Guaranteed.*

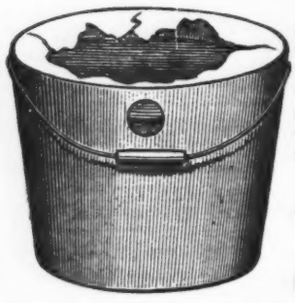
SOLE MAKERS

The Schneider & Trenkamp Co.

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RICE FIRE PAIL.



No other contains its chemicals forever dry in compartments. None other mingles its chemicals in solution at the will of the operator. Ready for instant use. Cannot freeze. Cannot diminish in volume by evaporation. Cannot deteriorate with age. All insurance men approve. No acid in the compartment pail. It will not affect the skin, does not injure textile goods nor alter colors. Instantly extinguishes the fiercest fire.

WORCESTER FIRE PAIL CO.,

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United States Supply Co. 51 John St., New York Agents.



STANDARD TOOL CO.,
Athol, Mass.

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If you buy any other inside window blinds before examining the new illustrated catalogue of the

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you will miss it in *style, quality, durability, convenience and price.* Agents wanted.

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HARTMAN & DURSTINE,

No. 51 Larwill St., Wooster, Ohio.

THE Columbiana Pump & Machine Co.

COLUMBIANA OHIO

Manufacturers of all kinds of

Iron Pumps,

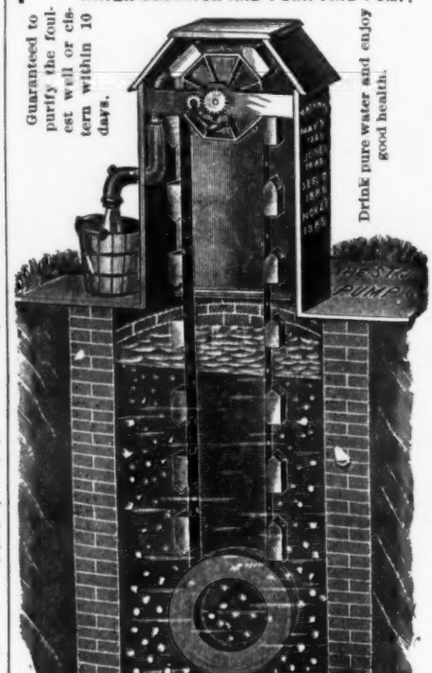
Pitcher, Cistern, Well and Force.



Satisfaction guaranteed. Send for Illustrated Catalogue and Price List.

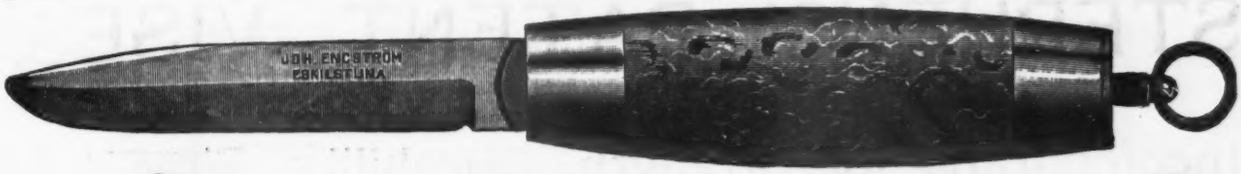
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Guaranteed to purify the foulest well or cistern within 10 days.



Drink pure water and enjoy good health.

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ENGSTRÖM'S CELEBRATED SWEDISH KNIVES AND RAZORS.



MEDALS: Philadelphia, 1876; Eskilstuna, 1878; Paris, 1878 and 1881.

Selling Agents:

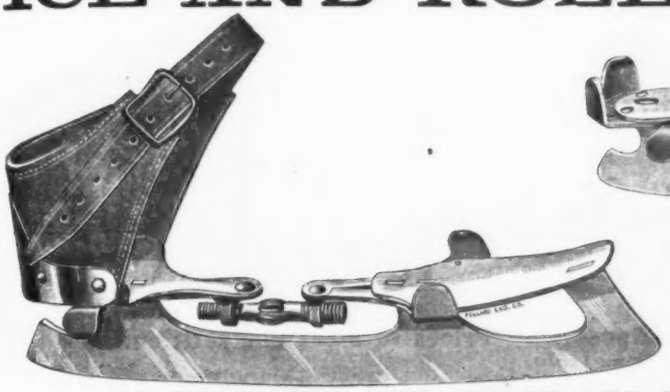
DAME, STODDARD & KENDALL,
374 Washington St., Boston, Mass.

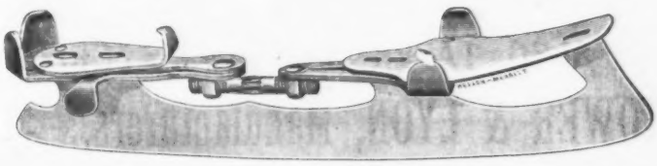
Established 1856. **Incorporated 1886.**

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MAKERS OF

ICE AND ROLLER SKATES.





Orders Direct from the Trade Solicited. Send for Catalogue.

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"Improvement the Order of the Age."

The Smith Premier Typewriter

THE LATEST AND BEST.

All the Essential Features greatly perfected. Important Improvements. The Best Inventive Talent and Mechanical Skill have been employed to produce a machine of increased Durability, Excellence of Design and Special Features.

We claim an inspection and a trial will prove it the Most Durable in Alignment, Easiest Running and Most Silent.

All Type Cleaned in 10 Seconds without Soiling the hands.

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The Leonard Patent Portable Storm Houses.

A long-felt Want Supplied. Comfort and Economy Assured.

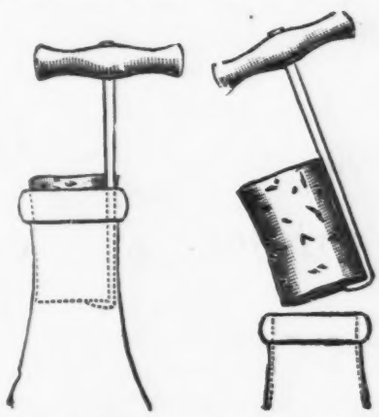


The sides and roof are constructed of Corrugated Iron set in a frame of Michigan Pine. The front is a good five panel sash door set in a frame of 2 x 4 pine. The upper panel is set with glass. The whole is neatly painted—two coats and two colors. Has a good latch with porcelain knob, and door spring. It is **Ornamental, Light, Strong, Cheap and Durable.** Anybody can set it up or take it down. Not necessary to have a carpenter. Storm Doors can be taken away in case of removal. The sides of the house are hinged to the front and fold inwards. The gables are hinged to the roof and fold inwards. The whole structure is only six inches thick when folded. To set it up, hook the edges to the door frame and adjust the roof to the top of the door frame. A notch may be sawed in the bottom rail for a projecting step or threshold if necessary. They save their cost in fuel every year, besides the comfort they give. Exclusive agencies given.

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Corkscrews No More.



No matter how great a pressure the stopper has been subjected to this Cork Puller will remove it unbroken with slight effort. Being constructed with an air passage it draws corks without creating a vacuum in neck of bottle.

FOR SALE BY JOBBERS.

Manufactured by

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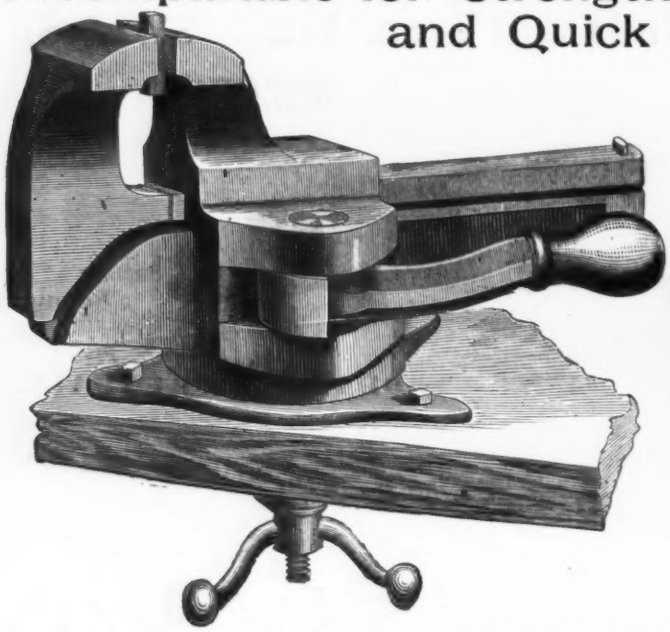
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POSITIVELY REMEDIED. **Greely Pant Stretcher,** by mail, **25 Cents. Agents wanted.**
B. J. GREELY, 715 Wash. St., Boston, Mass.

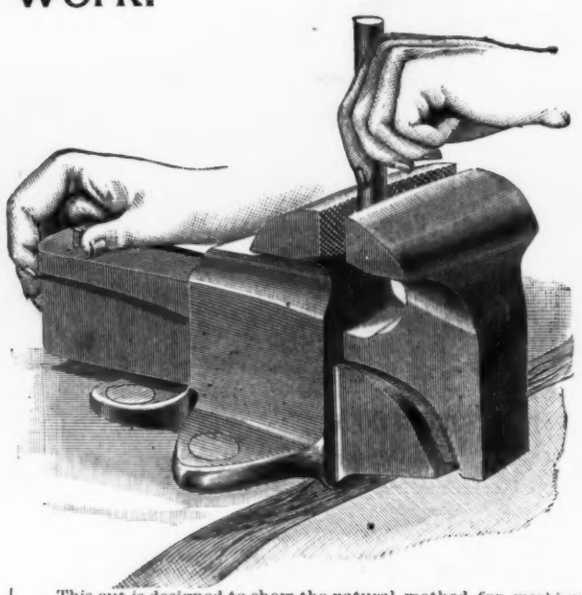
STEPHENS' PATENT VISES.

Quick Adjusting Cam and Toggle-Joint. Stationary or Patent Swivel Bases.

Incomparable for Strength, Durability, Firm-Hold and Quick Work.



Made both in FLAT and SWIVEL in 2 in., 2¾ in., 3½ in., 4½ in., 5½ in., 6½ in. width of Jaw.



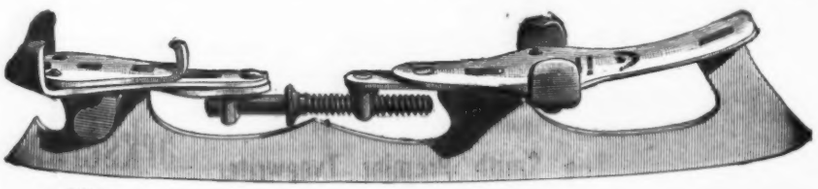
This cut is designed to show the natural method for working this vise and the EASE and FACILITY with which it is *opened* and *closed*.

ALSO TAPER JAWS, PIPE GRIPS AND OTHER ATTACHMENTS,

TOWER & LYON, Manufacturers, - - 95 Chambers St., New York.

UNION LOCK LEVER ICE SKATES.

An entirely new line. Superior Goods. Prices to meet Competition.

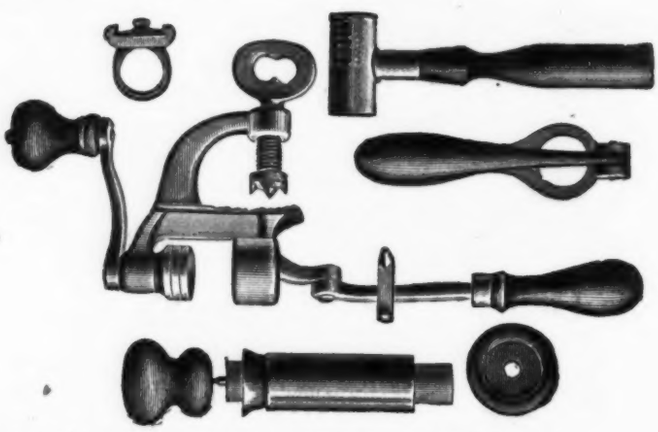


Dog Collars IN 600 STYLES, Many New, AND DOG Muzzles.



Gun Implements.

A complete line, best quality and finest finish.



NEW AND COMPLETE LINE PATENT OVAL EDGE TACKLE BLOCKS.

MANUFACTURED BY THE

UNION HARDWARE CO.,

Torrington, Conn.

NEW YORK OFFICE in charge of TOWER & LYON.

The Le Page Company's Improved Process Liquid Fish Glues.



Be sure the vignette and signature of WM. N. LE PAGE are on every package.

WM. N. LE PAGE is the original inventor of Preserved Liquid Fish Glue, and of the New and Improved Process by which this glue is manufactured, producing the finest, clearest and strongest glue in use.

Our new cans, with patent cap and fastening, have important advantages.

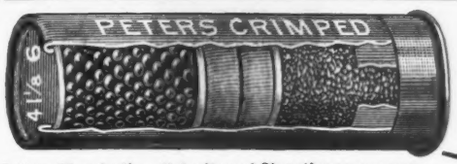
For the convenience of dealers in exhibiting and selling our Improved Process Glues, we have prepared WIRE STANDS of neat design, for use on the counters or in the show window. See illustrated price lists.

THE LE PAGE CO.,

50 Central Street, Boston.

New York Office: 95 Chambers St., in charge of TOWER & LYON.





Pattern, Penetration, Velocity and Cleanliness are combined in

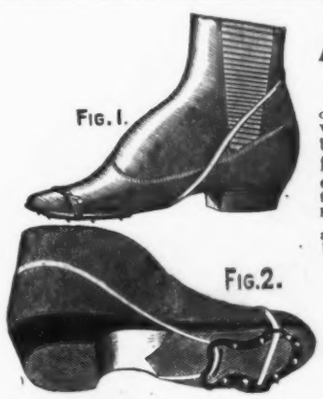
The Peters Cartridges

THE PETERS CARTRIDGE CO., CINCINNATI, OHIO.
MANUFACTURERS OF

The "Prize" Paper Shells,

thoroughly WATERPROOFED, STRONG and GAS TIGHT, ATTRACTIVE, RELOADABLE MANY TIMES, have EXTRA STRENGTH. PRIMERS, no MISS or HANG FIRE.

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ARCTIC ICE DOGS.

These Ice Dogs or Creepers, designed to secure safe footing on slippery pavements, are the simplest and best ever invented. They consist of a very light, malleable casting of the best quality of iron, fitted for the sole of the shoe and fastened to the foot by means of a toe-strap and an endless elastic band drawn high over the heel, thus holding the dog to its place, and being easy of adjustment, is very quickly put on or taken off.

There are two sizes, for ladies and gentlemen respectively, and the peculiar adjustment attaches them equally well to boots, shoes or rubbers, without difficulty or delay.

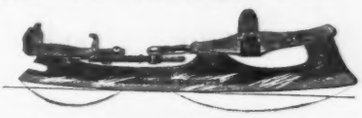
Retail at 50c. per pair. Liberal discount to dealers.

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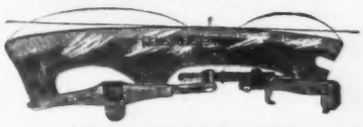
GEORGE A. WALLER,

SENECA FALLS, N. Y.

See the "REINDEER."



WELDED STEEL.



See the "REINDEER."

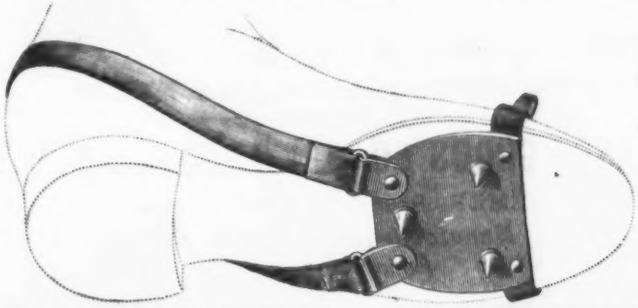
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THOS. A. LAMOTTE,

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The Jamestown Ice Creeper.



Send for Circulars showing variety of styles

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Amidon's Corner Brace.

Globe Jaw and 2nd Improved Barber. Twelve best style Braces in the world. Send for catalogue.

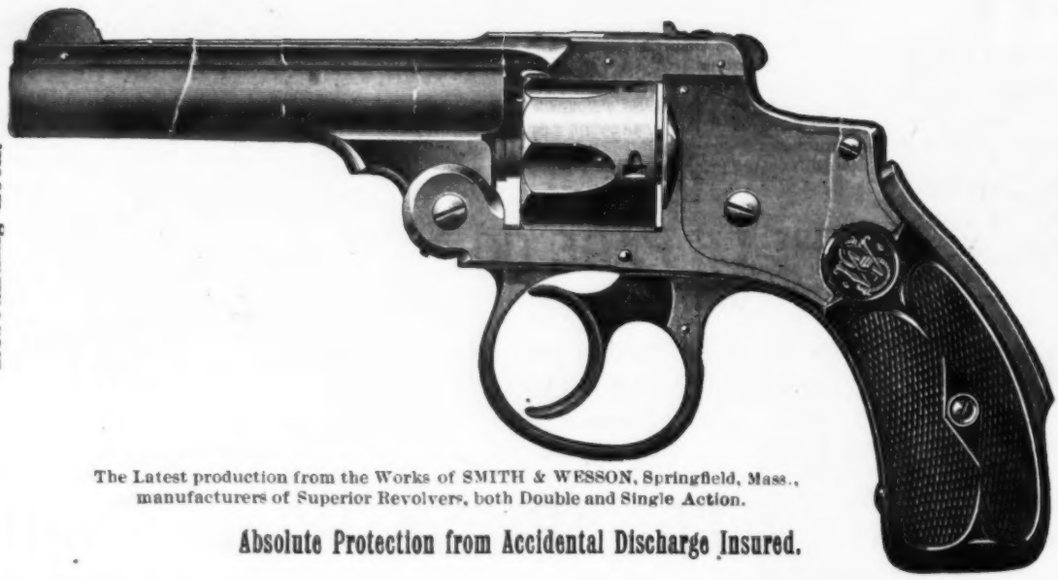
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BUFFALO, N.Y.

A NEW DEPARTURE!

The Smith & Wesson Hammerless, Safety

REVOLVER.

Provided with Automatic Shell Extractor, Rebounding Lock.



CALIBRE 32, WEIGHT 14½ OZ.
—AND—
CALIBRE 38, WEIGHT 18½ OZ.,
NOW READY.

The Latest production from the Works of SMITH & WESSON, Springfield, Mass., manufacturers of Superior Revolvers, both Double and Single Action.

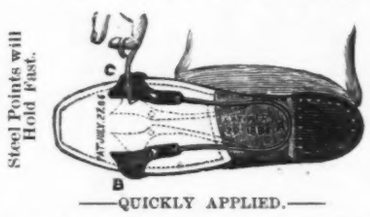
Absolute Protection from Accidental Discharge Insured.

SUPERIORITY IN EVERY POINT UNIVERSALLY CONCEDED.

SEND FOR DESCRIPTIVE CIRCULAR.

IMPROVED

ALL-STEEL GRIP ICE CREEPER.



—QUICKLY APPLIED.—

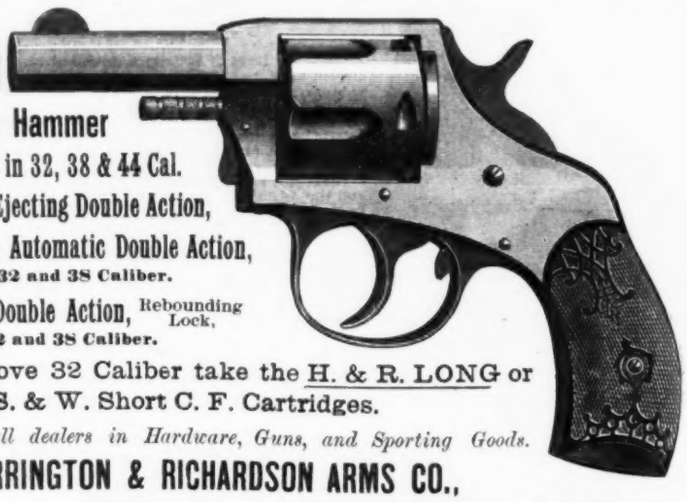
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146 N. Fourth St., Phila.

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OUR

AMERICAN



And Safety Hammer

Double Action in 32, 38 & 44 Cal.

H. & R. Imp. Ejecting Double Action,

H. & R. Imp. Automatic Double Action,

In 32 and 38 Caliber.

And Premier Double Action, Rebounding Lock,

In 32 and 38 Caliber.

All the above 32 Caliber take the H. & R. LONG or S. & W. Short C. F. Cartridges.

For Sale by all dealers in Hardware, Guns, and Sporting Goods.

HARRINGTON & RICHARDSON ARMS CO.,

Worcester, Mass., U. S. A.

Standard Coat & Hat Hook



U. S. PATENTS.
Oct. 11, 1875.
Oct. 7, 1884.
Nov. 16, 1887.
Dec. 13, 1887.
Sept. 18, 1888.
July 30, 1880.
Sept. 17, 1889.
ENGLAND, FRANCE, AND GERMANY.

Automatic Machinery and Special Tools made to order.

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Hardware Specialties and Standard Wire Goods.

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Exclusive Manufacturers of Dog Collars and Furnishings.

Send ten cents to cover postage for our new illustrated Catalogue in nine colors.



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MANUFACTURERS OF

Sohn's Patent Foot Rest

And Other Metal Specialties.

We make a specialty of manufacturing on contract all kinds of metal articles, small machinery, etc. Have the largest nickel plating works in the West. Obtain our estimate on work and submit meritorious patents for manufacture and sale. Liberal discount to the trade. Send for circular.

CHICAGO NICKEL WORKS, 125 and 127 Ontario Street, Chicago.

The NEW PATENT CAN for LE PAGE'S GLUE

EVERYBODY APPRECIATES IT.

NO MORE SWEARING ABOUT TOPS THAT WONT UNSCREW.

ALWAYS GET THE BEST

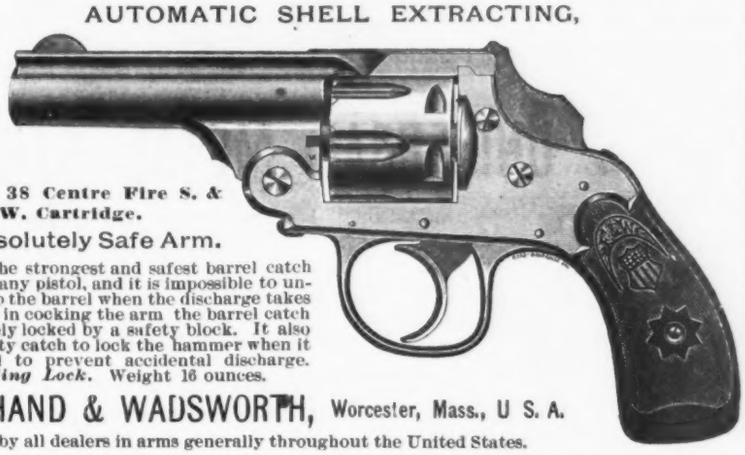


These patent cans are furnished only with *the Genuine* LE PAGE'S GLUE, manufactured by the **RUSSIA CEMENT COMPANY** Gloucester, Mass., U. S. A. New York Office, 95 Reade St. and 113, Chambers St.

FOREHAND & WADSWORTH'S

New Hammerless Revolver

AUTOMATIC SHELL EXTRACTING,



32 and 38 Centre Fire S. & W. Cartridge.

An Absolutely Safe Arm.

It has the strongest and safest barrel catch put upon any pistol, and it is impossible to unlock or tip the barrel when the discharge takes place, for in cocking the arm the barrel catch is positively locked by a safety block. It also has a safety catch to lock the hammer when it is desired to prevent accidental discharge. *Rebounding Lock.* Weight 16 ounces.

FOREHAND & WADSWORTH, Worcester, Mass., U S. A.

Sold by all dealers in arms generally throughout the United States.



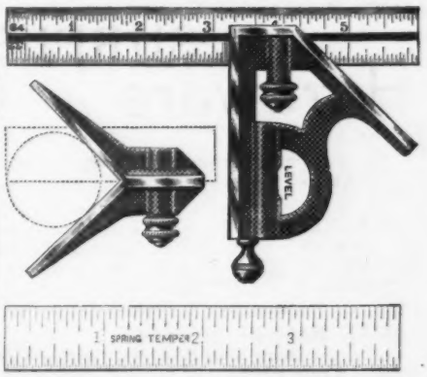
Protection Against Fire!

The most simple and durable in the market. Warranted non-explosive. Always ready for use. Instantaneous in operation. Can be recharged for 10 cents in less than 5 minutes. Will extinguish over 2000 cubic feet of flame. No bottle to break, no screws to unscrew. Think of the great advantages over all other extinguishers. Write for new Catalogue.

Black Cloud Chemical Fire Extinguisher Co.,

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AGENTS WANTED. EXCLUSIVE TERRITORY GIVEN.



FINE TOOLS FOR MECHANICS.

The Best line of Modern FINE TOOLS for Mechanics in this Country is made by

L. S. STARRETT,

ATHOL, MASS.

☞ Send two-cent stamp for full list.

THE

RAPID CORK PULLER.

(Pat. applied for.)

—MANUFACTURED BY—

Meriden Malleable Iron Co.,

Meriden, Conn.



SIMPLEST

AND

CHEAPEST.

Will not break bottles. Cuts wires and pulls cork with one motion of the hand.

Durable and Compact.

A GOOD SELLER.

Prices quoted on Application.

Closes doors without slamming or breaking of Glass.



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NORTON DOOR CHECK AND SPRING CO., Sears Building, Boston, Mass.

AGENTS WANTED.

Band Saws, Circular Saws, Planers

—AND—

Other Machines for Pattern Shops.

BUFFERS, GRINDERS

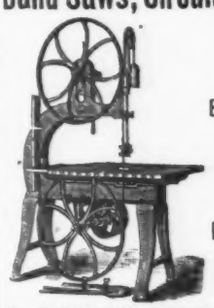
AND OTHER

Metal Working Machines.

LATHES

For Wood and Metal.

CATALOGUES FREE



P. PRYIBIL, 518 to 524 W. 41st St, New York

JAMES SURPLESS. ROBT. M. DUNN. BENJAMIN S. ALDER.

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Hardware - Commission - Merchants,

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The HENDRYX is made of Hard, Spring Brass Wire, with Solid Brass Rails, riveted together. No solder whatever. Strong, light, convenient, elegant, and positively vermin-proof.

The best and leading Cage and commands the trade.

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Cages in Polished Brass as described; also in Bronze, Bright Metal and Japanned.

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Packed 20 doz. in case, ⅓ doz. in box; nickel plated keys; stop on latches. For 20 dozen lots add 10c. per dozen; cases, 30c. f.o.b. Kenton. Other goods equally as cheap. Samples sent to intending purchasers. At the above prices it will not take much money to "stock up" on this class of goods.

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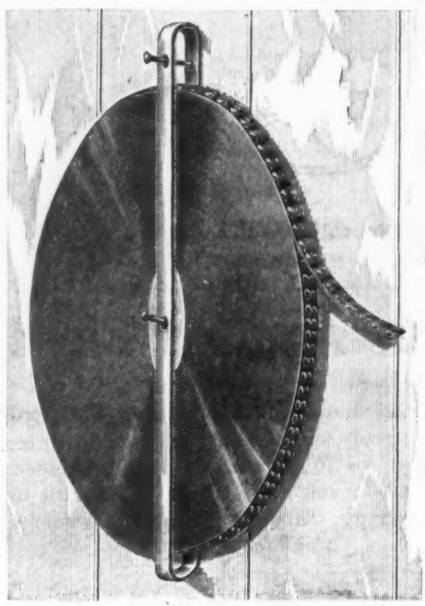
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Coils of 300 Feet in Length,

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Enterprise Meat Choppers

ARE THE **BEST IN THE WORLD.**

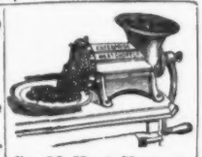
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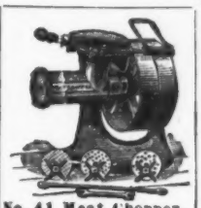

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Are Almost Noiseless.
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THEY SAVE POWER.
Do the Work Rapidly.
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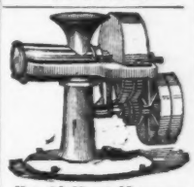
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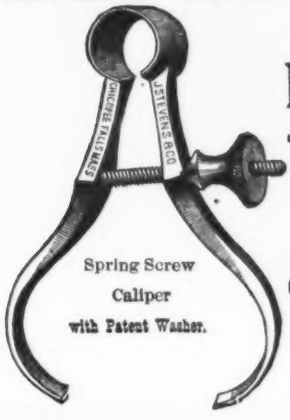
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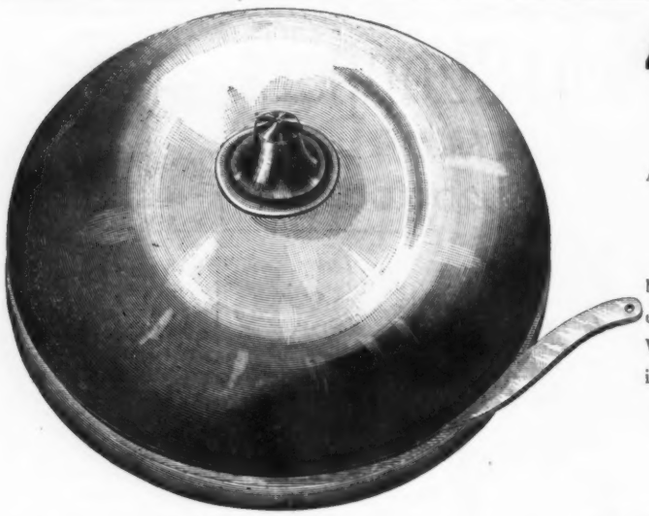
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Operated by a Push Button.

About **400** ordinary Electric Rings for each Winding,

Without the Aid of a Battery.

Can be placed in any part of the house. Easily adjusted by any one who will follow directions printed on the bottom of each box. Button Case, necessary Cranks and 75 feet of Brass Wire included, making each bell complete and nicely packed in suitable boxes.

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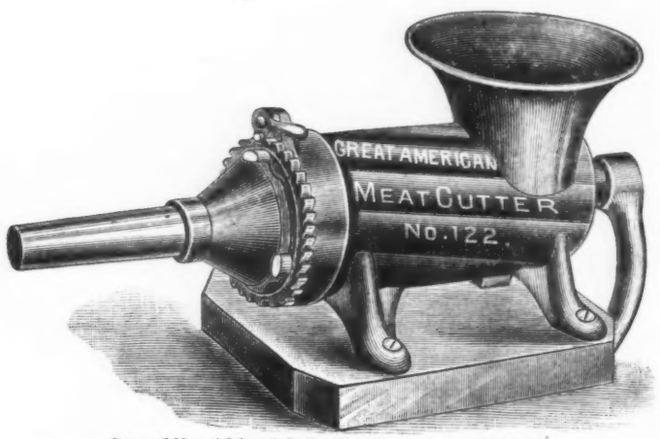
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PATENT REVERSIBLE KNIFE.

Best in the Market.

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" 124,	40-inch Fly-Wheel,	300	"	per hour, each,	25.00
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Thanking you for past favors, we remain,

Respectfully,

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As a rule is disagreeable, something that all sorts of devices for overcoming have been offered the public, nearly all falling far short of the ideal, however. The trade appreciating an apparatus that actually performs what its makers claim has enabled us to send out from our factory thousands of "The Anthony Wayne Washer," without a single complaint, either from the dealer or user. We are still making this machine at Ft. Wayne, Ind.



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☞Our XXX Coloring Composition (white) takes the place of rouge; costs less, weighs less and does cleaner and better work.☜

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Self-Adjustable Clothes Wringer.

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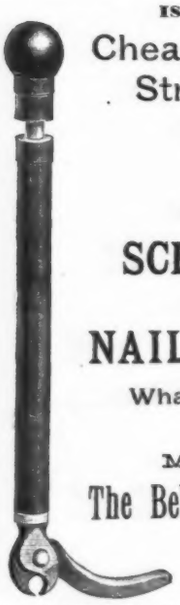
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Cheapest,
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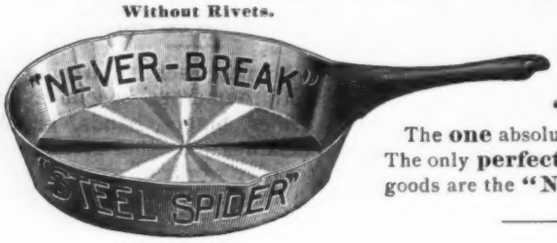
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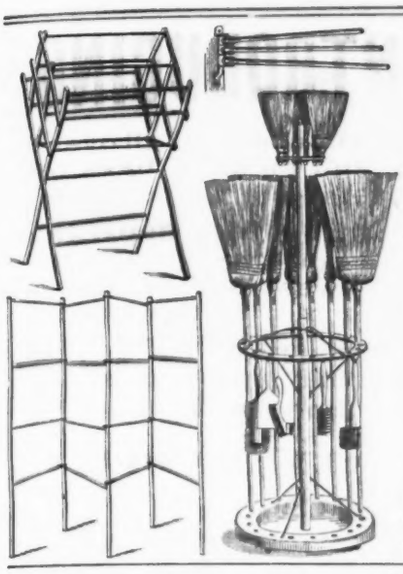


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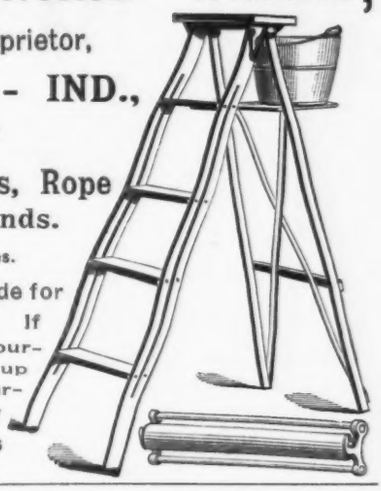
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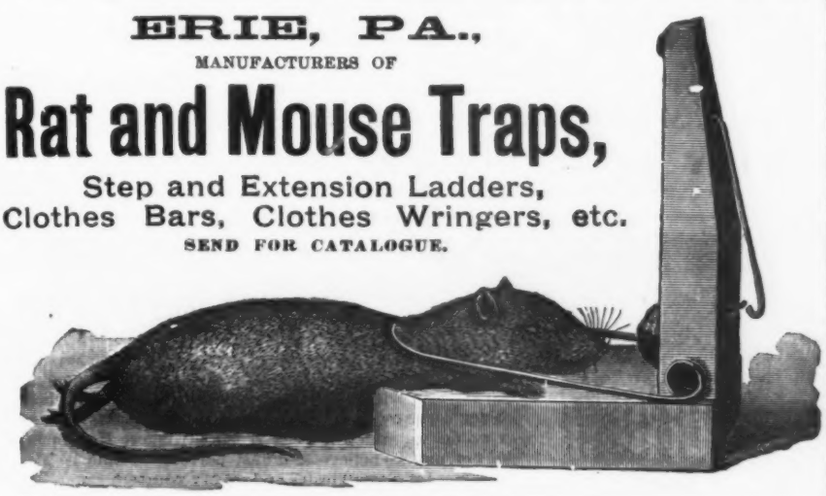
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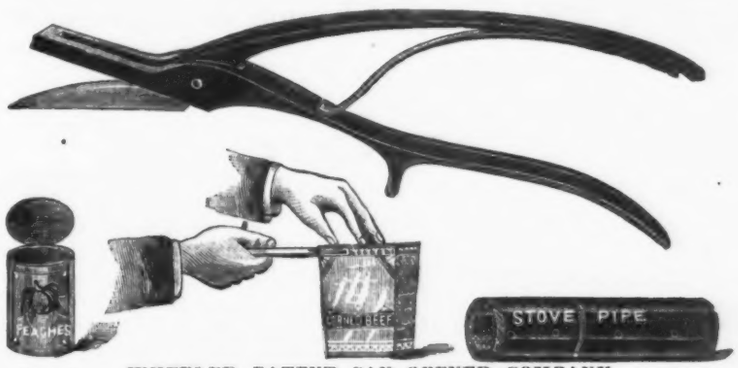
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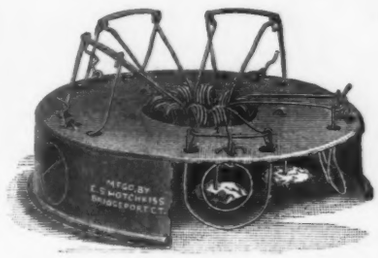
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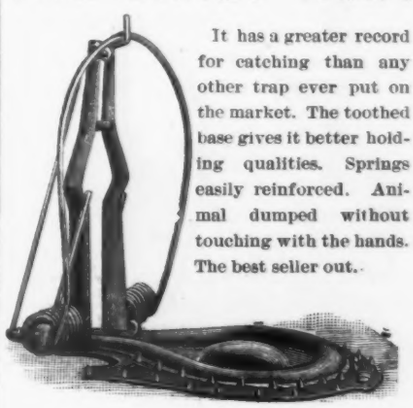
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It has a greater record for catching than any other trap ever put on the market. The toothed base gives it better holding qualities. Springs easily reinforced. Animal dumped without touching with the hands. The best seller out.

IT IS A PLATFORM TRAP.

The Animal does not have to pull a bait to be caught.

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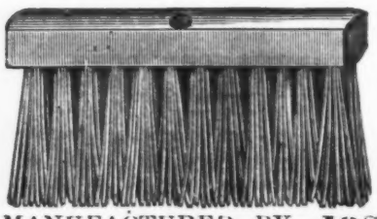


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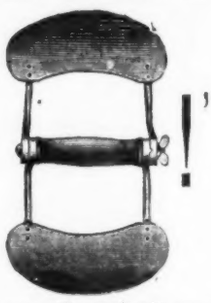
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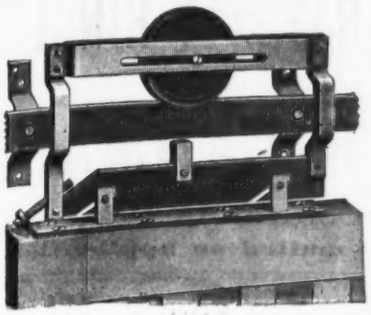
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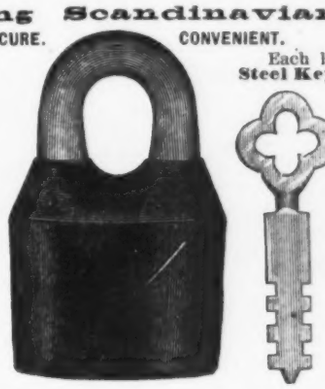
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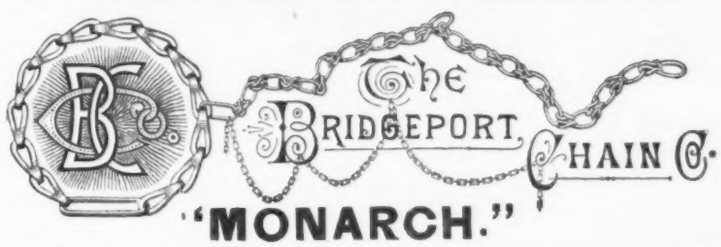


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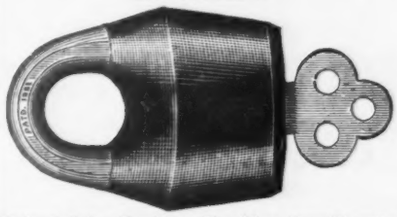
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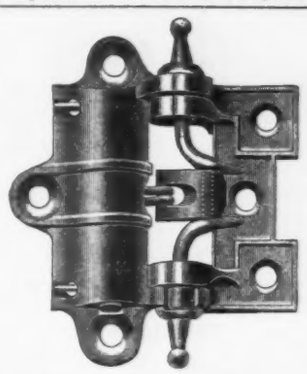


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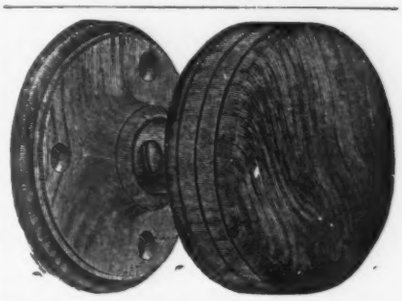


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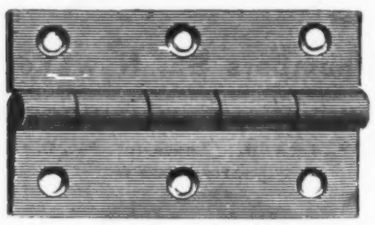
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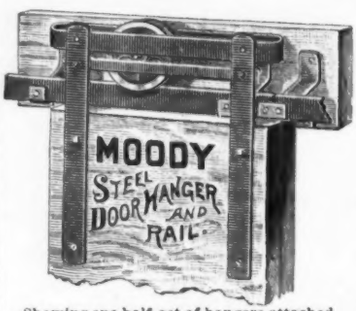
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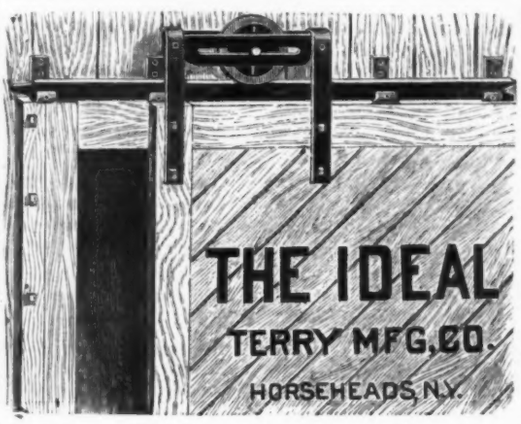


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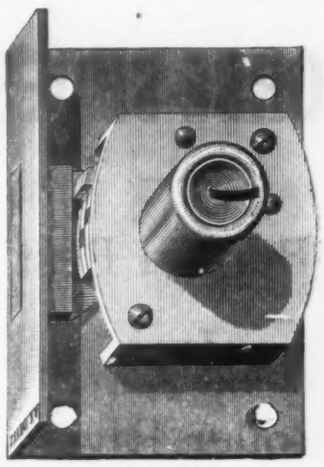
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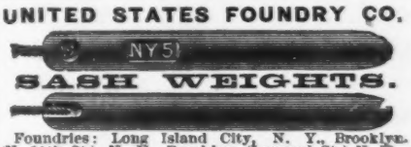
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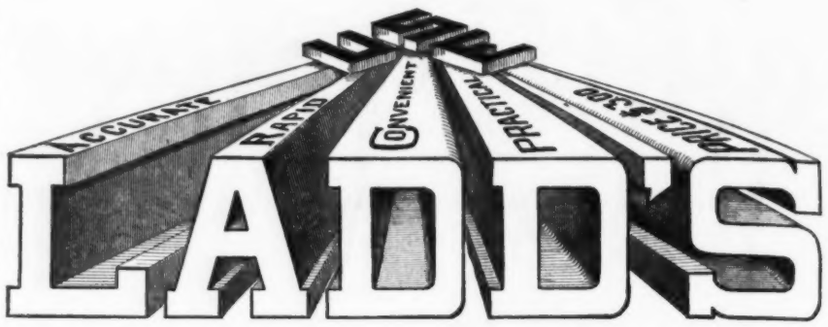
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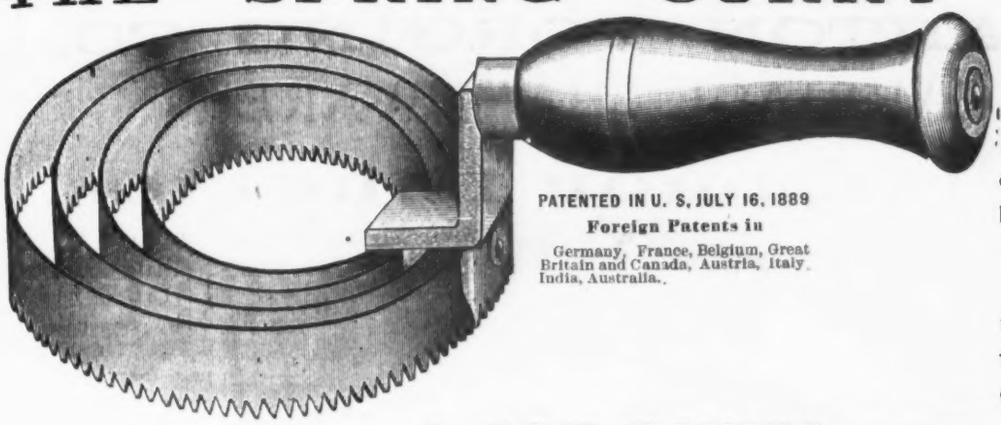
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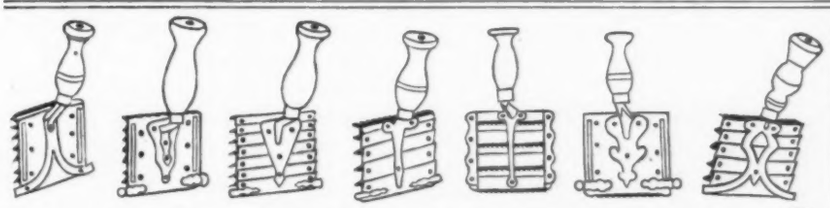
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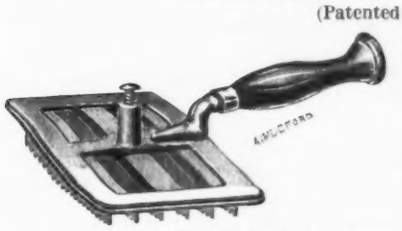
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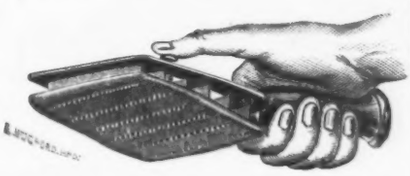
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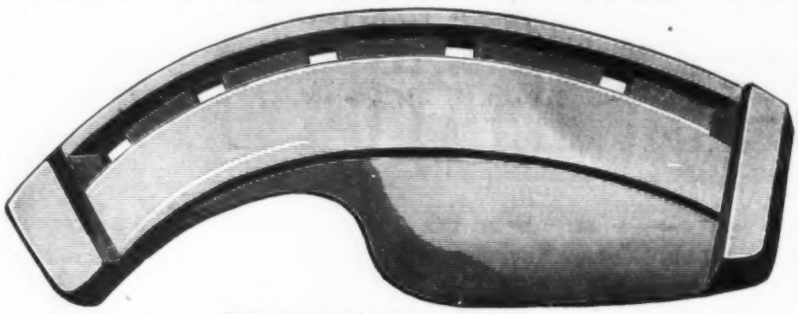
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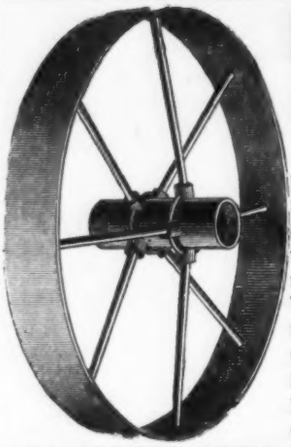
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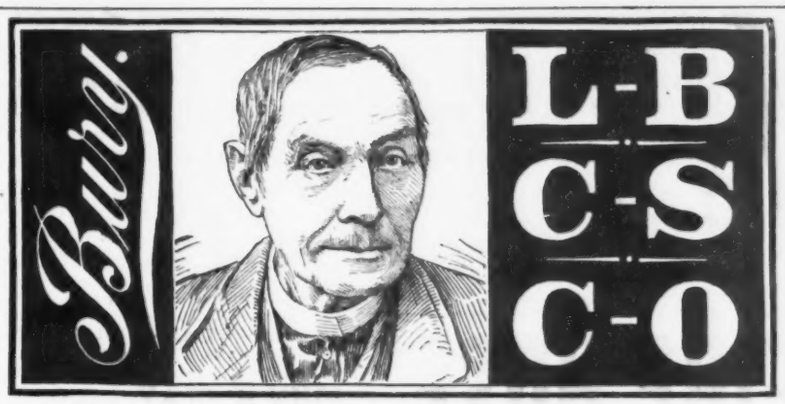
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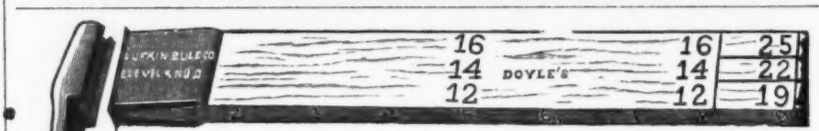


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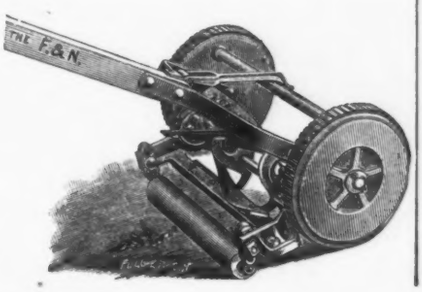
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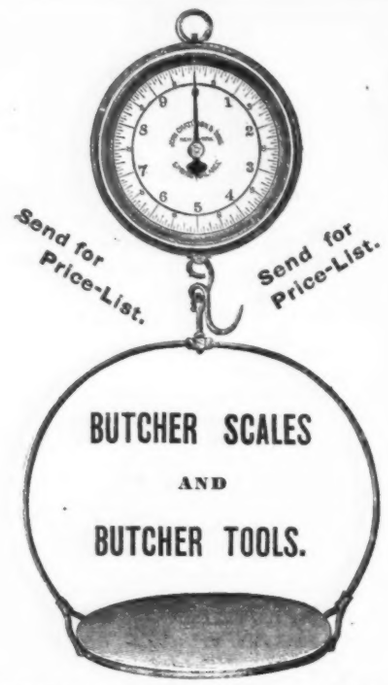
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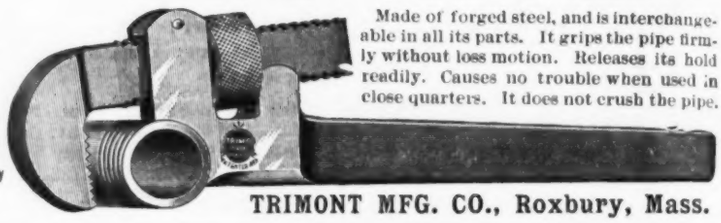
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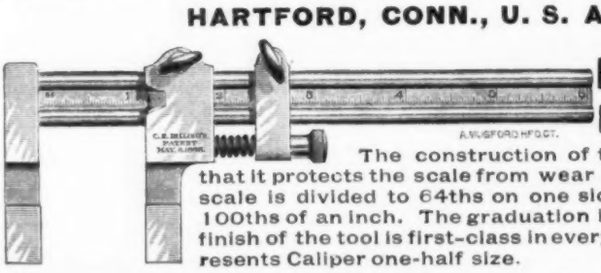
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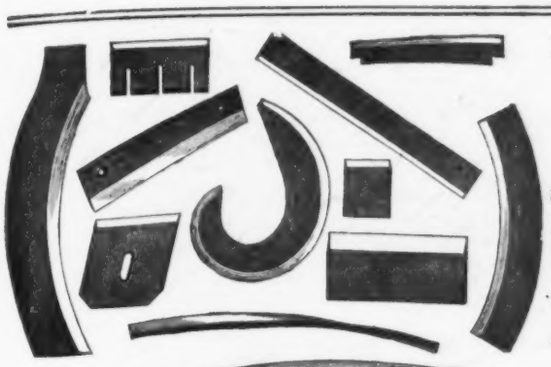
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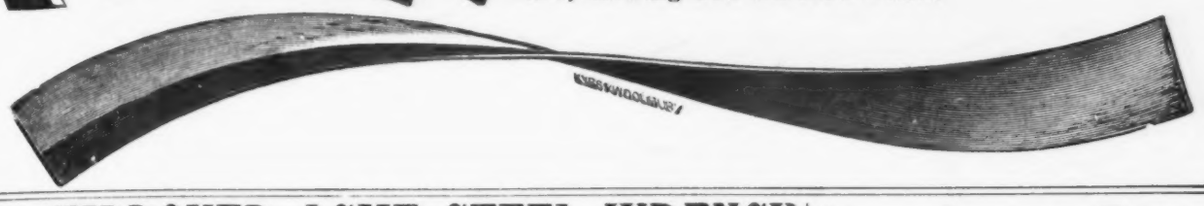
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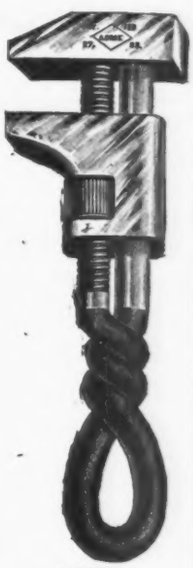
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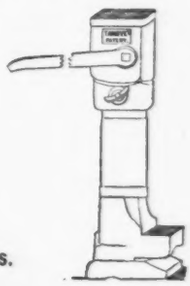
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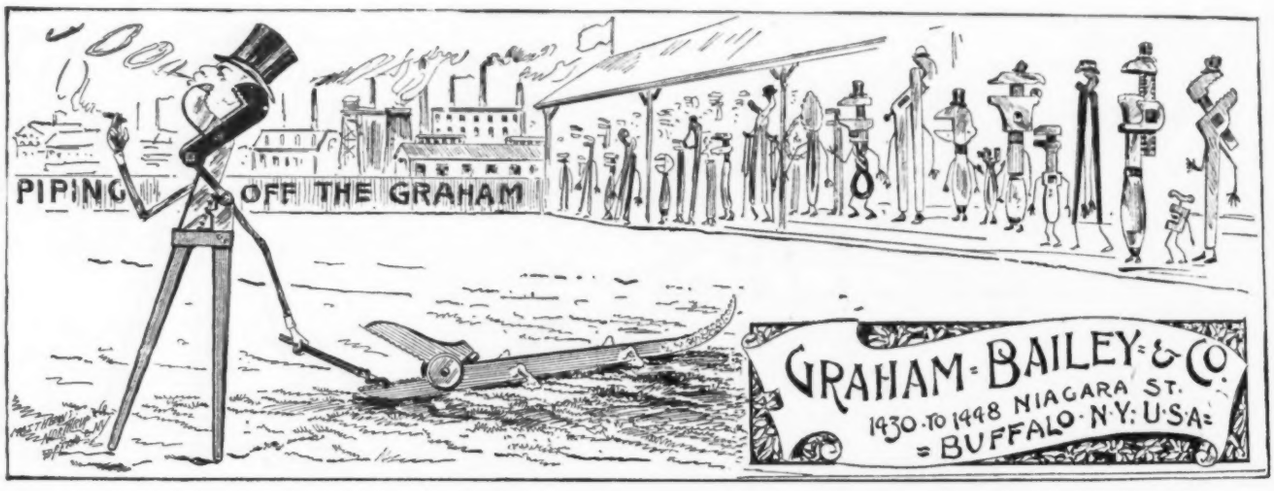
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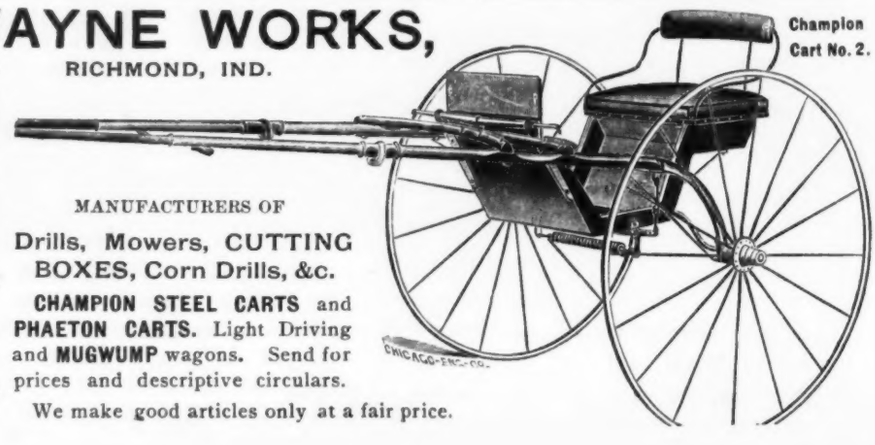
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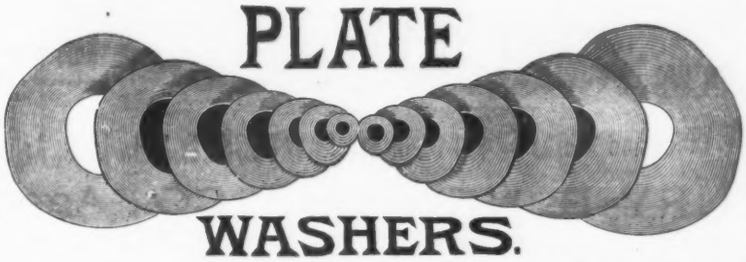
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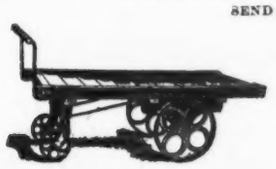


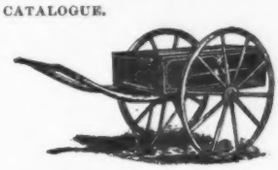
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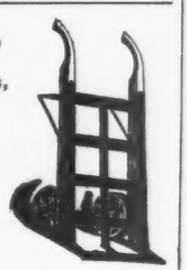
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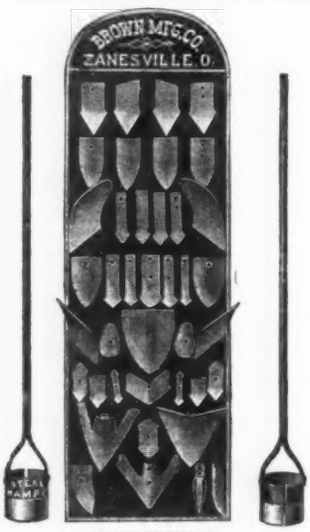
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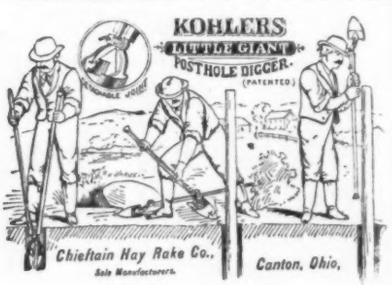
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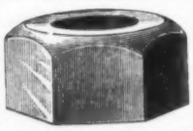
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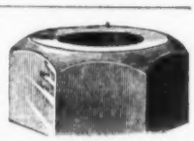
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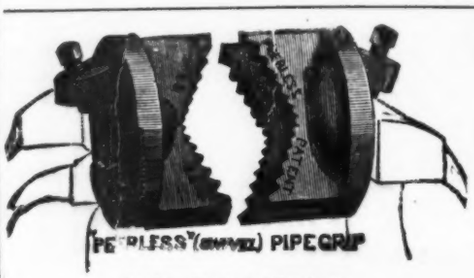
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Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brittan, Graham & Mathes. Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E.D., N. Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Phila., Pa.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N. Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironware, Galvanized.
Hill, Jas. Mfg. Co., Providence, R. I.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Prybil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
"Champion"
Enterprise Mfg. Co., Philadelphia, Pa.
F. & N. Lawn Mower Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
"Champion."

Lawn Sprinklers.
McGowan, J. H. Co., Cincinnati, O.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Levels.
Phelps, Frank, Auburn, N. Y.

Locks & Knobs, *Manufacturers of.*
Deltz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
National Machinery Co., Tiffin Ohio
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. Fdy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mincing Knives.
Shepard, Sidney & Co., Buffalo, N. Y.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Hanson, Van Winkle & Co., Newark, N. J.
Zuckrr & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mcl.. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Oil Tanks.
Nell, Wm. & Co., Chicago, Ill.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint Burners.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Washington.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Long & Allstatter Co., Hamilton, O.
McCoy & Sanders, 26 Warren, N. Y.

Power Punches and Shears.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y
Merriman, A. H., West Newton, [illegible]
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury [illegible] Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo [illegible]
Dean Bros., Indianapolis, Ind.
Goulds Mfg. Co., Seneca Falls, New York.
Hooker [illegible] Pump Co., St. Louis, Mo.
Hughes [illegible] Co., Cleveland, O
Keystone [illegible] and Machine Works Phila
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Columbiana Pump & Machine Co., Columbiana, Ohio
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

(See Alphabetical Index, Page 104.)

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D, & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.
Wayne Works, Richmond, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules, *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Captain Hay Rake Co., Canton, Ohio.
[illegible] & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85 & 89 Cliff, N.Y.
Eclipse Bros., Philadelphia.

Screens, Door and Window.
Queen [illegible] Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Bro[illegible] & Co., New Haven, Conn.
Eclipse.

Screw Plates and Pipe Cutter.
Jarecki Mfg. Co., [illegible] Pa.

Screws, *Makers of.*
American Screw Co., P[illegible], R. I.
Blake & Johnson, Waterbu[illegible]onn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia. Pa
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shot.
Globe Shot Works, Philadelphia, Pa.

Show Cases.
Goddard, Curtis, Alliance, Ohio.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Am. Skate Co., Philadelphia, Pa.
Dame, Stoddard & Kendall, Boston, Mass.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass
Union Hardware Co., Torrington, Conn.

Slate Pencils.
Lippincott, J. B. Co., Philadelphia.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
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Spring Keys.
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Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Chess, Cook & Co., Pittsburgh, Pa. Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Bealy, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Cincinnati Tool Co., Cincinnati, Ohio.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.
Sherwood Mfg. Co., Buffalo, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 86 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Ventilators.
Colby Hdw. & Electric Co., Chicago, Ill

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Milton Mfg. Co., Milton, Pa.

Washing Machines.
Wayne, Anthony Mfg. Co., Ft. Wayne, Ind.

Water Motors.
Belknap Motor Co., Portland, Me.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty, Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel
Makers.
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Wks, Indianapolis Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass
Graham, Bailey & Co., Buffalo, N. Y.
Trimont Mfg. Co., Roxbury, Mass.
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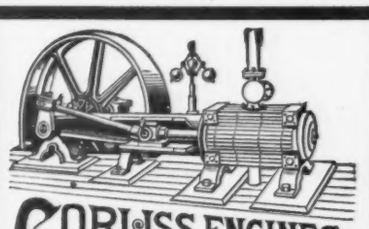
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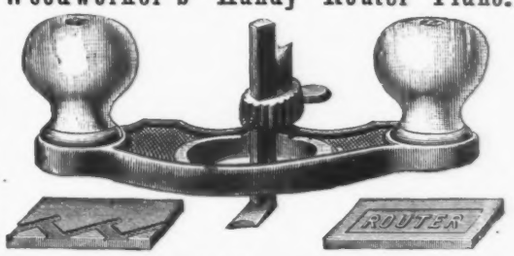
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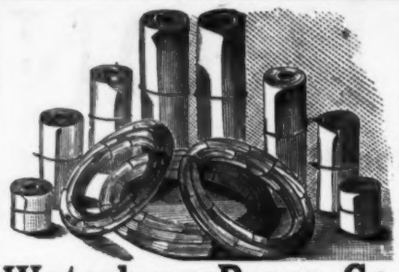
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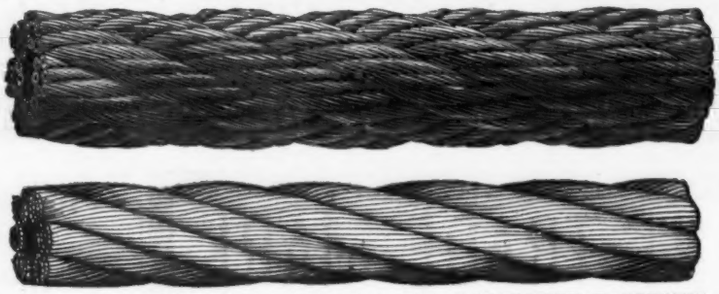
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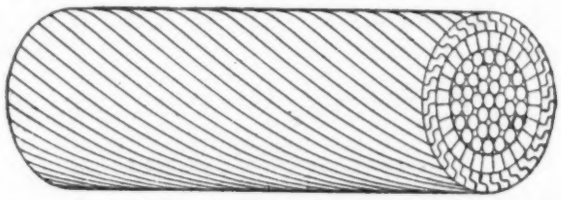
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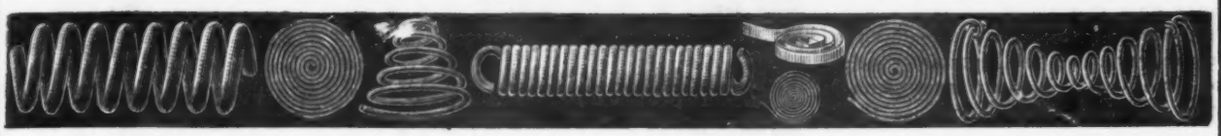
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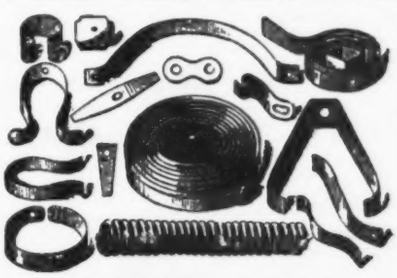
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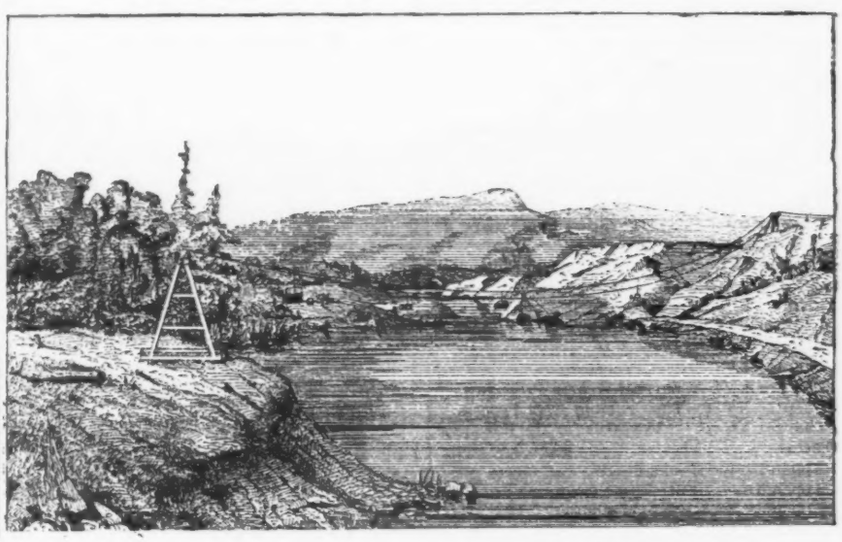
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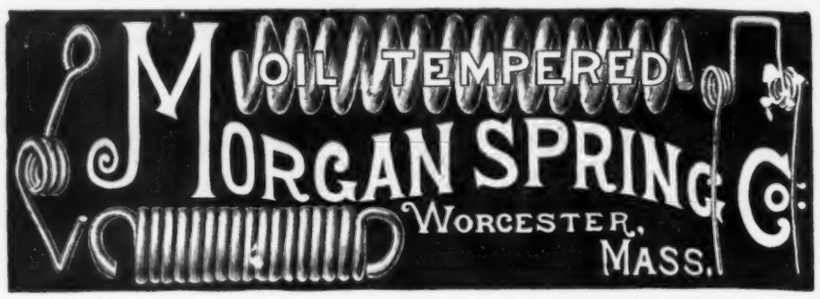
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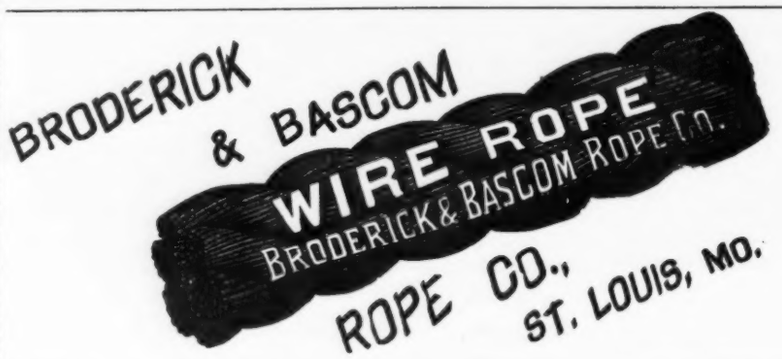
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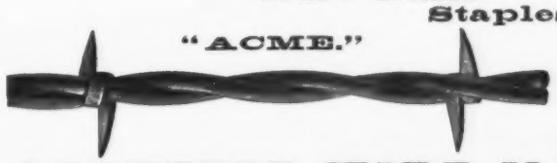
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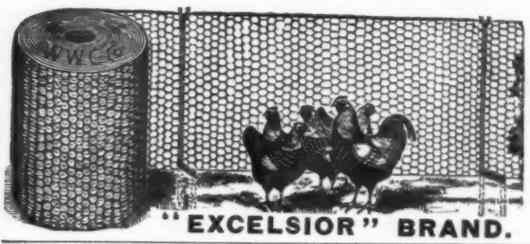
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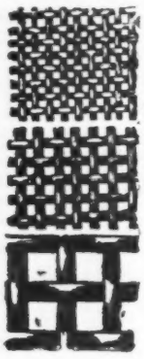
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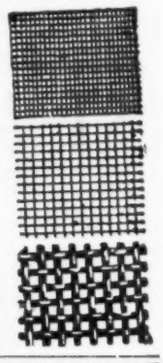
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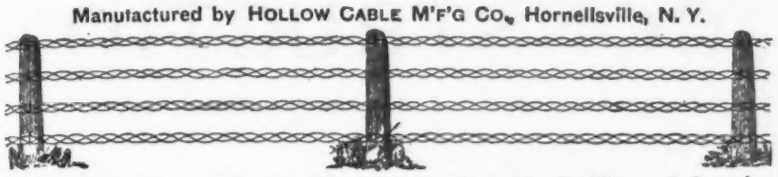
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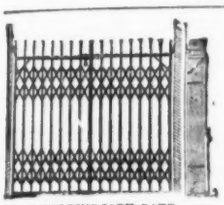


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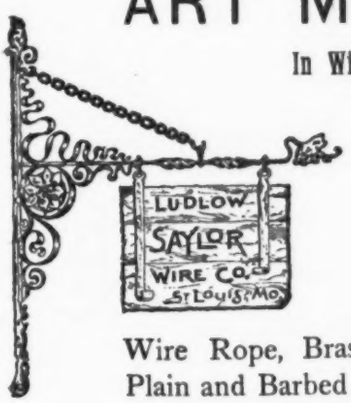
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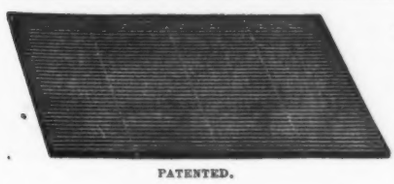
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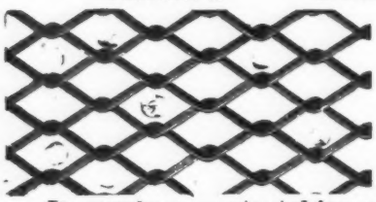
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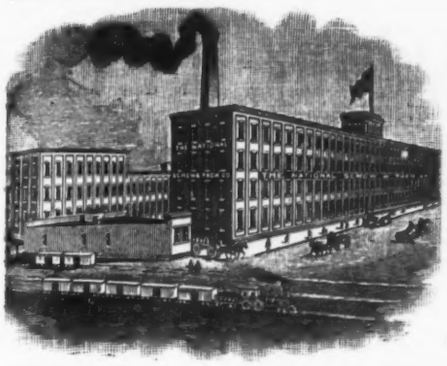
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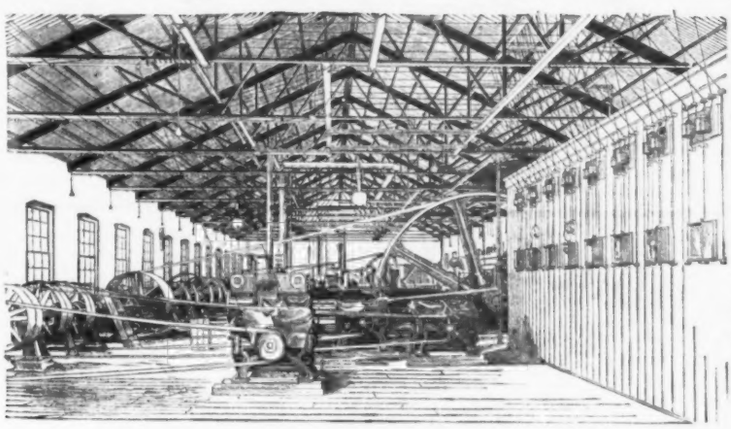
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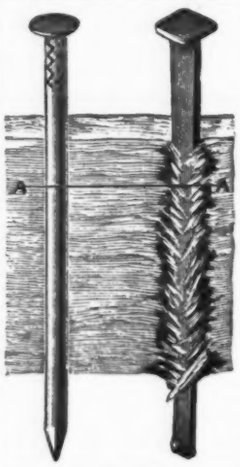
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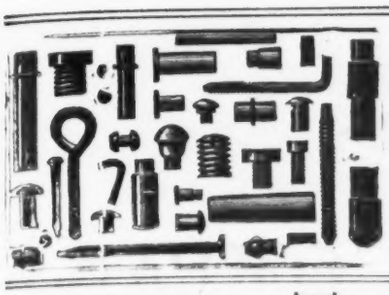
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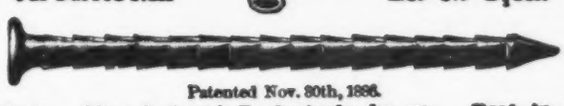
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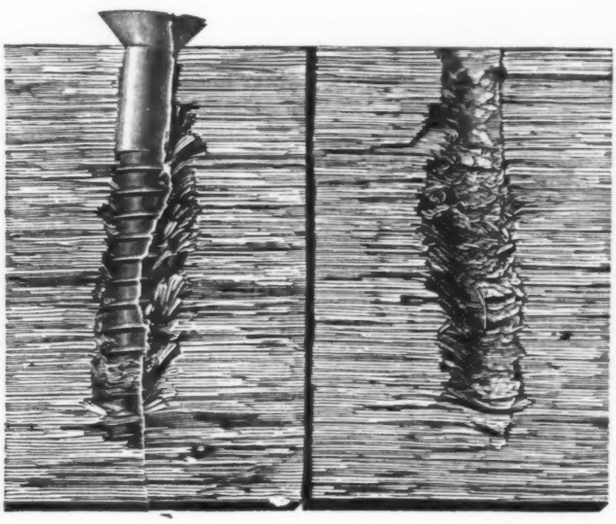
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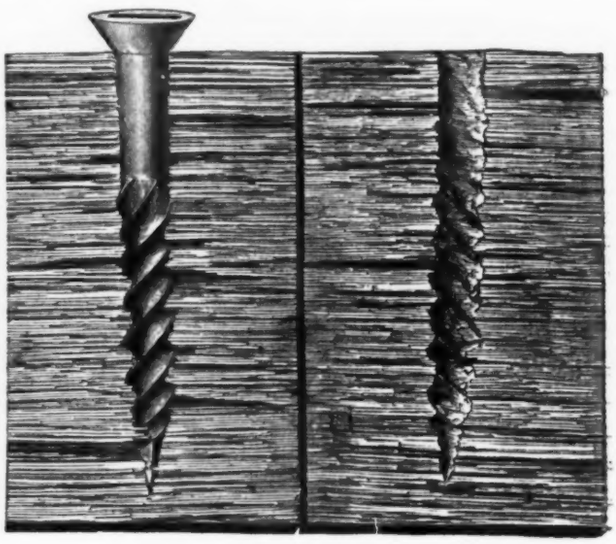
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Patented May 10, 1887; July 19, 1887; July 10, 1888. Other patents pending.



A common cut thread screw as ordinarily inserted—*i.e.*, driven two-thirds of its length with a hammer and the balance with a screw driver. Fibres of the wood are necessarily broken, and holding power of screw much impaired.



The "ROGERS' DRIVE SCREW" driven with a hammer its entire length. It revolves as it goes in and does not break the fibres of the wood, but makes its own nut of the cavity it forms.

The foregoing illustrations speak for themselves, but we call attention to a few advantages of the "ROGERS' DRIVE SCREWS."

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2. Rapidity of insertion.
3. Increased holding surface.
4. Ability to be driven with hammer and withdrawn with Screw Driver numerous times from same hole.
5. Superior Head, which will withstand blows of a hammer and not impair the slot.
6. Improved Slot, admitting the use of a heavier Screw Driver.
7. A "ROGERS' DRIVE SCREW" of small diameter will hold as much as a common screw of larger diameter.

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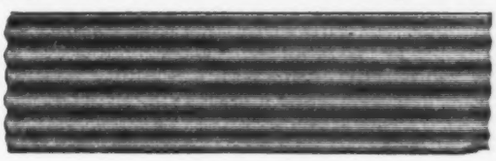
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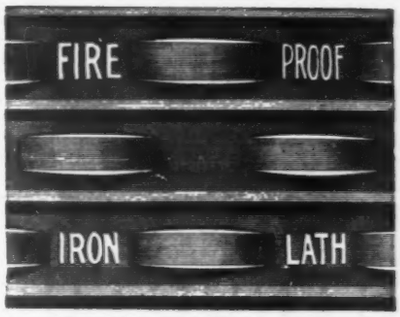
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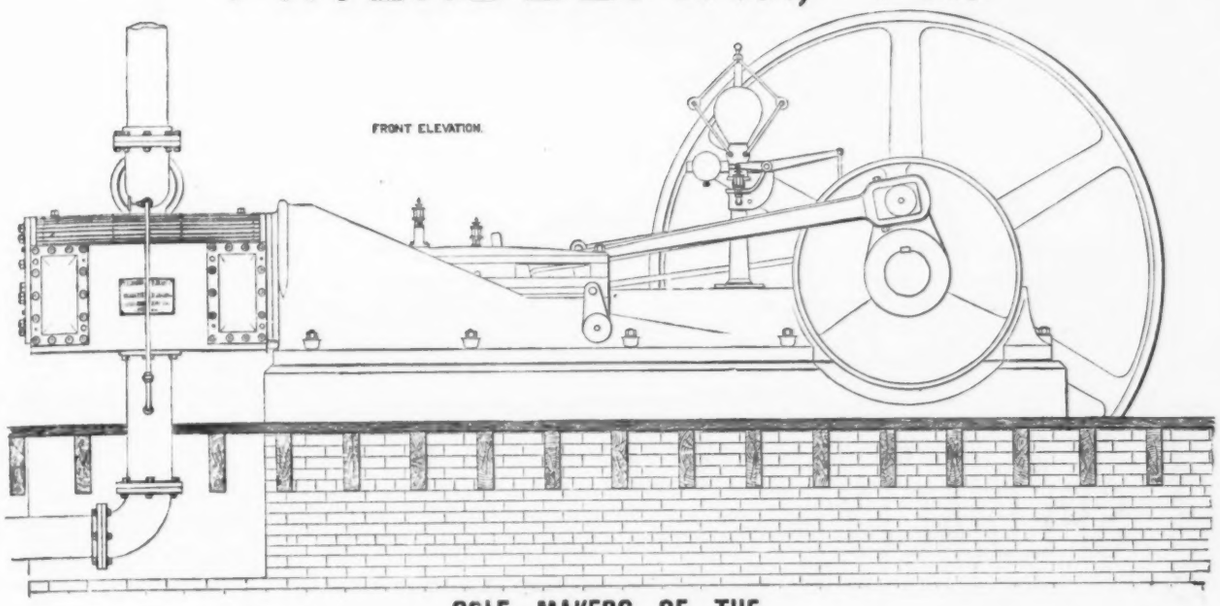
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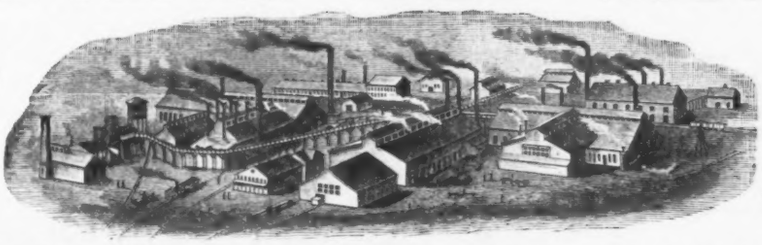
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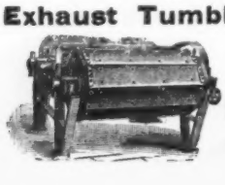
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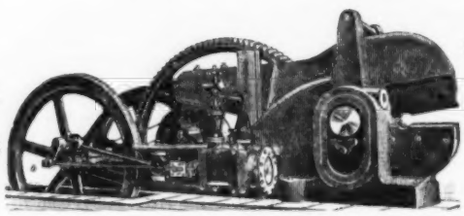
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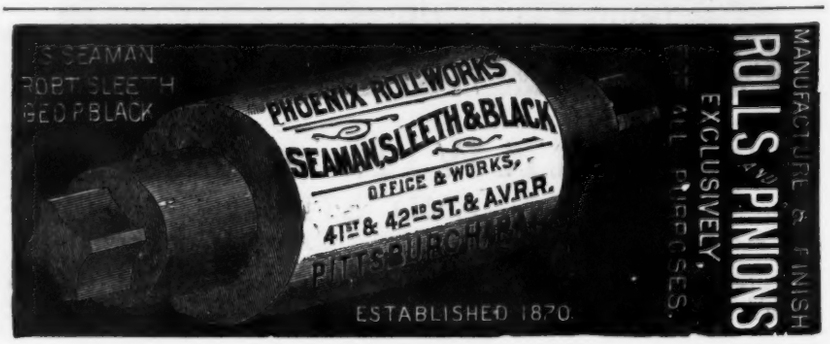
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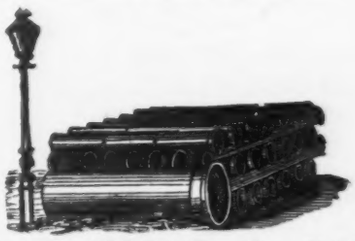
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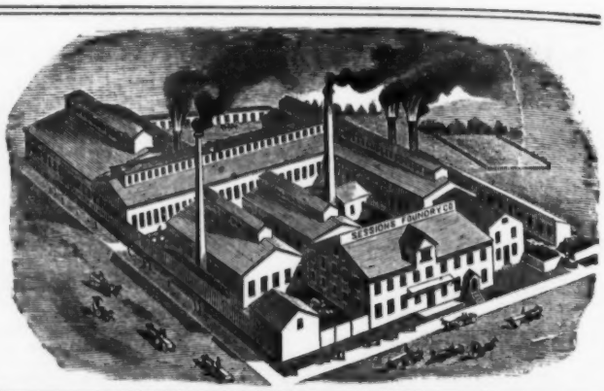
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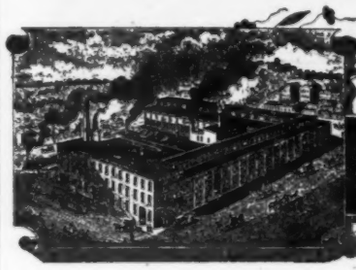
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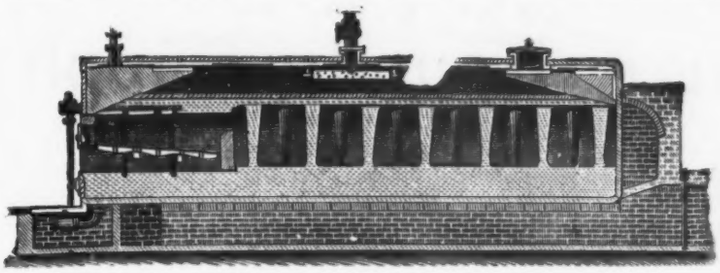
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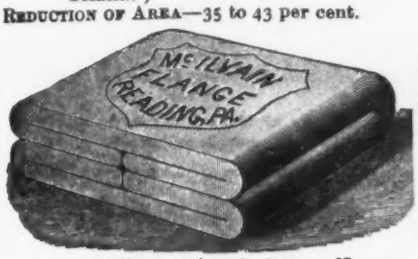
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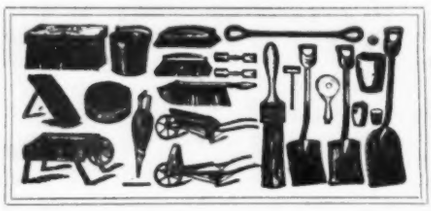
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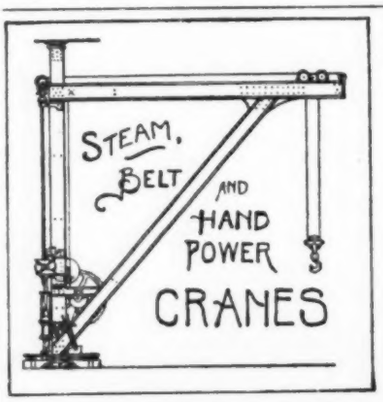
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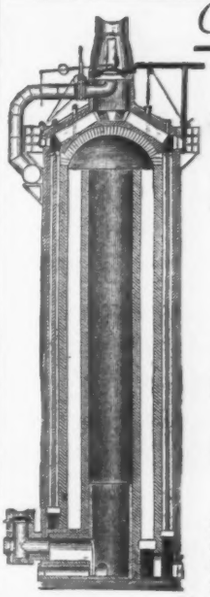
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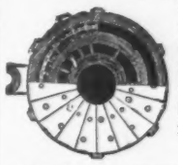
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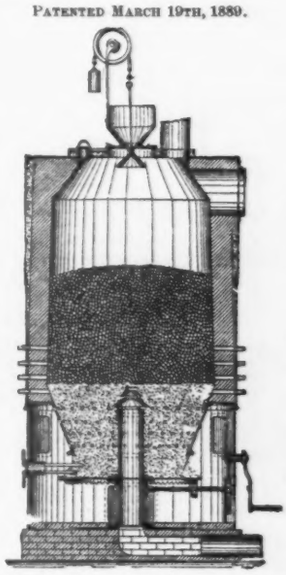


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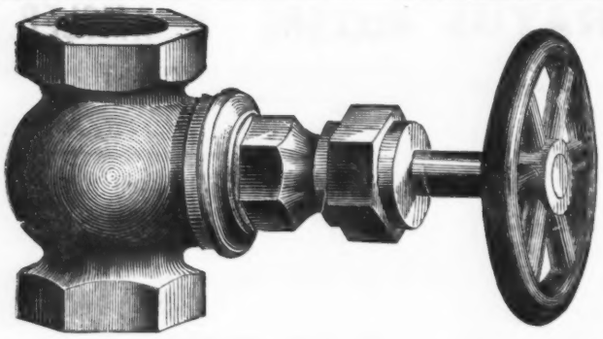
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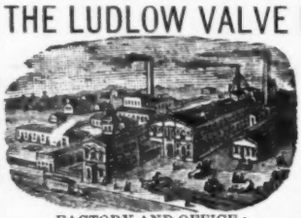
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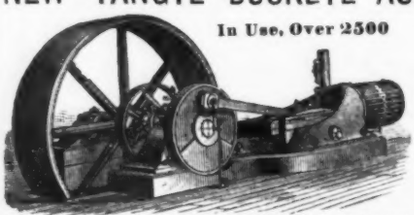


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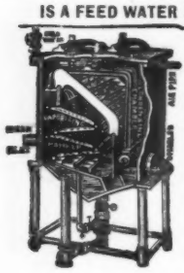
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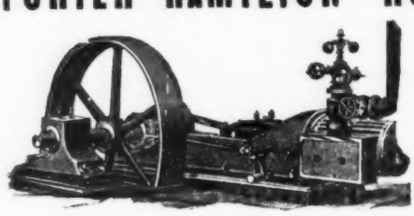
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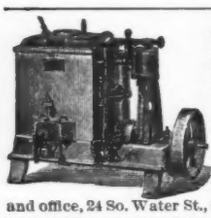
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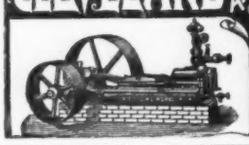
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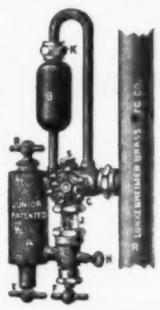
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HON. HENRY C. ROBINSON, Attorney at Law, Hartford.
HON. FRANCIS B. COOLEY, of the National Exchange Bank, Hartford, Conn.
A. W. JILLSON, late Vice-Prest. Phœnix Fire Insurance Co., Hartford, Conn.
EDMUND A. STEDMAN, Treasurer of the Fidelity Co., of Hartford Conn.
CLAPP SPOONER, Bridgeport, Conn.
GEORGE BURNHAM, Baldwin Locomotive Works, Philadelphia.
HON. NATHANIEL SHIPMAN, Judge U. S. Circuit Court.

THE CUTS AND READING MATTER IN THIS SPACE ARE CHANGED WEEKLY.



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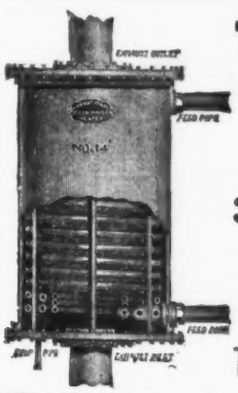
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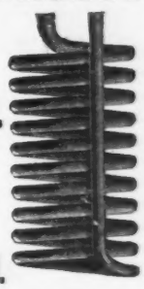
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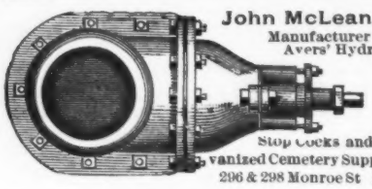
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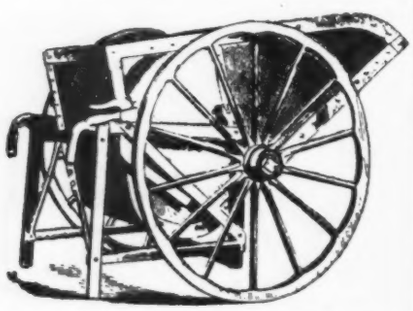


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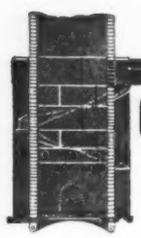
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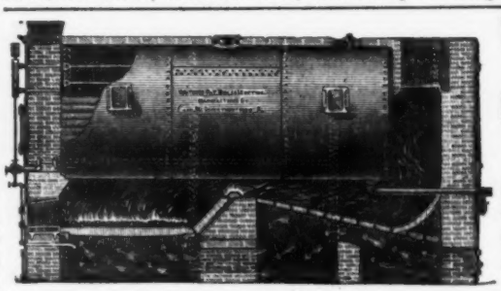
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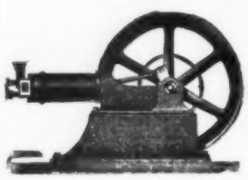
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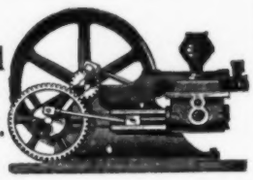
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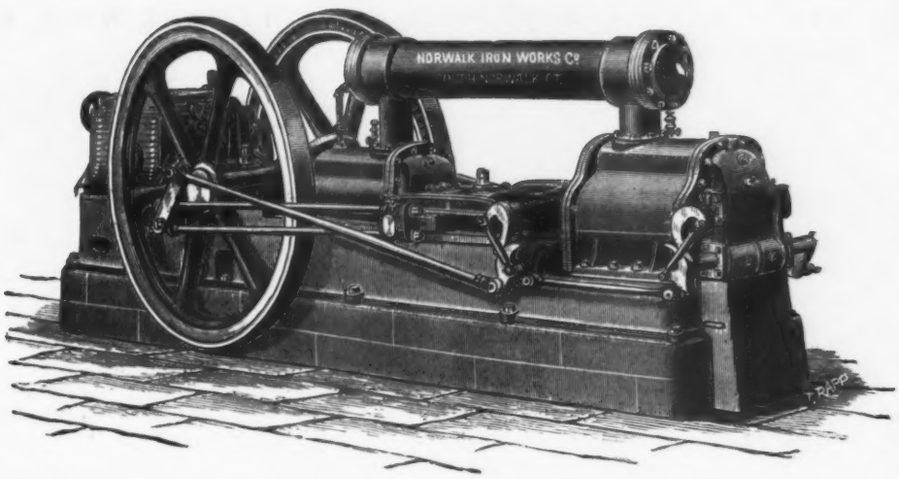
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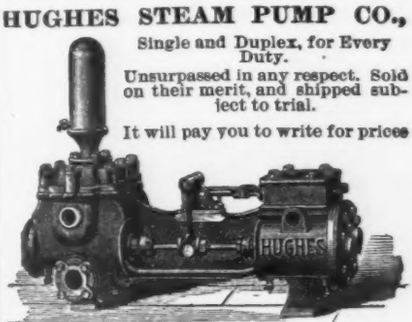
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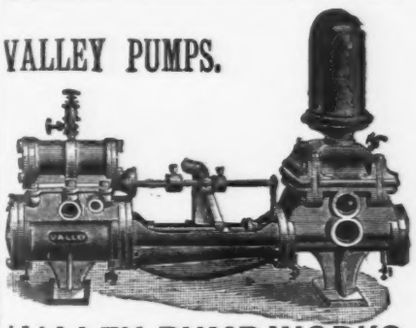
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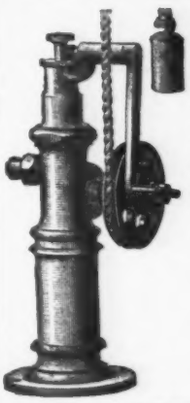
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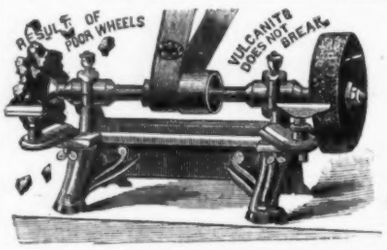
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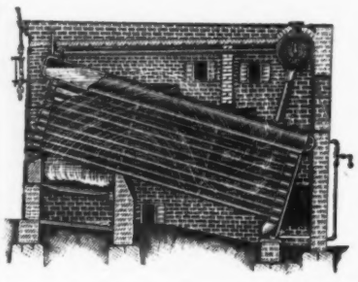
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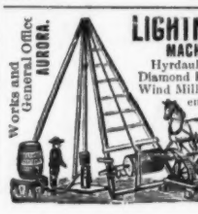
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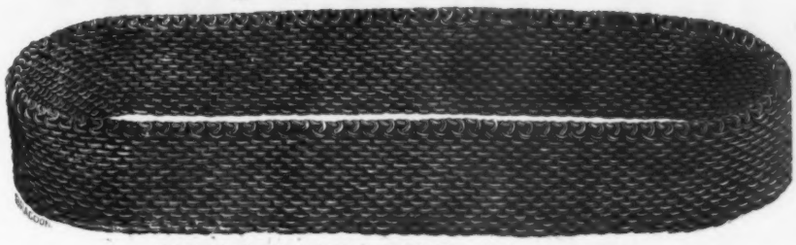
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Dear Sirs:—In reply to your inquiry, we would say we have had one of your 3-ply wire belts in constant use, running day and night, for the past three months. It is 22 inches wide by 96 feet long, weighing more than 1200 pounds. It has distributed all the power from a 200-horse automatic engine direct to a train of rolls rolling steel. We had formerly used a 3-ply leather belt. The belt is still in use and can be seen at our works.

Yours truly,
PARK, BROTHER & CO., Limited.

Oct. 26, 1890.—The belt referred to by Messrs. Park, Bro. & Co., has one side covered with rubber and runs on iron faced pulleys, and took the place of a 3-ply leather belt, and to this date has been in constant use for about six months. The Messrs. Park are the largest manufacturers of Cast Steel in America if not in the world.

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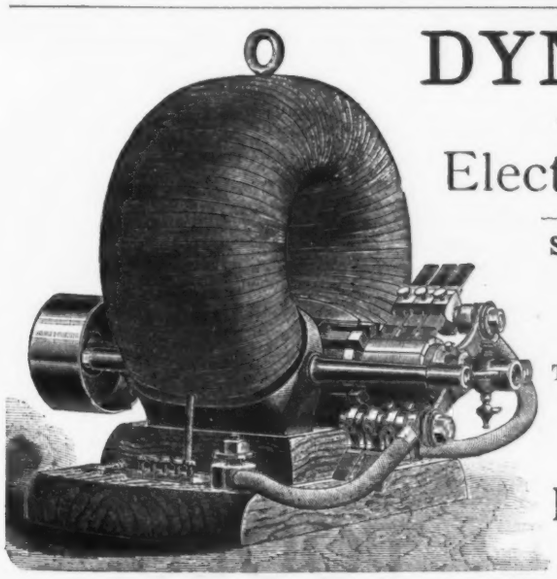
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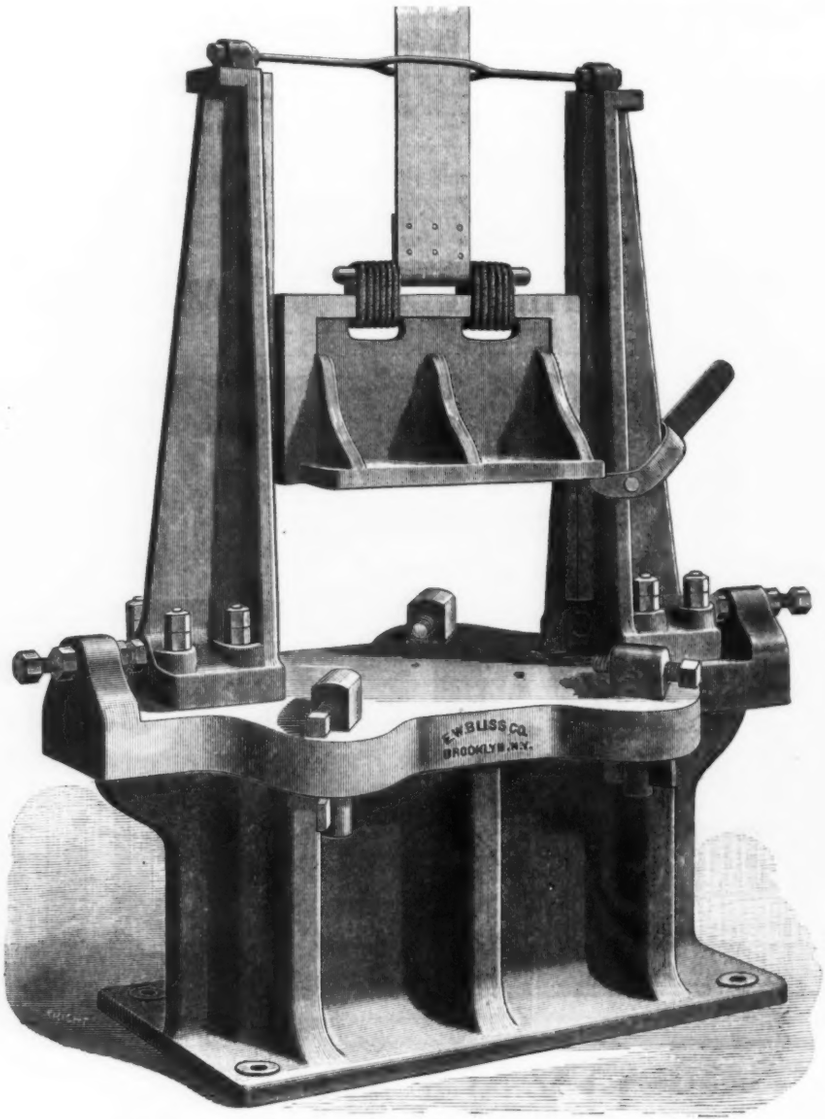
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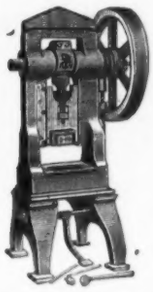
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This machine is used for stamping ornamental designs in sheet metal for cornice work; for metallic ceiling and siding plates; metallic roofing, shingles, &c. It has a width of 32 in. between housings, which are adjustable and can be so made as to take a hammer much less in width if desired. The poppets are so made as to accommodate a die 24 in. x 28 in., or round dies, as may be required. The cast steel hammer has a face of 24 in. x 30 in., and weighs 900 lbs. The total weight of drop press is 9500 lbs. The hammer is usually lifted by a belt running over a flanged pulley on counter shaft, the operator holding the loose end of belt and raising the hammer for a light or heavy blow as the work requires.

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Built in six sizes and weights.

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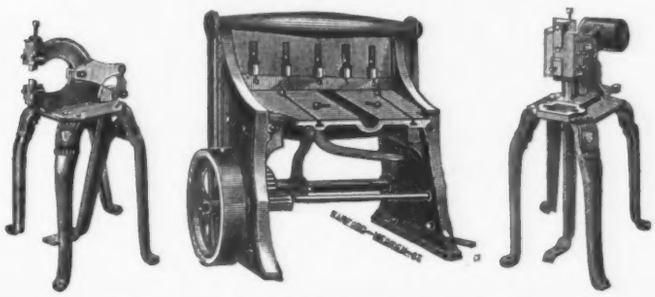
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The Stiles Patent Toggle Joint Drawing Press.

Made in fourteen sizes, weighing from 1000 to 150,000 lbs. The only double action Toggle Drawing Press made with a positive down dwell.



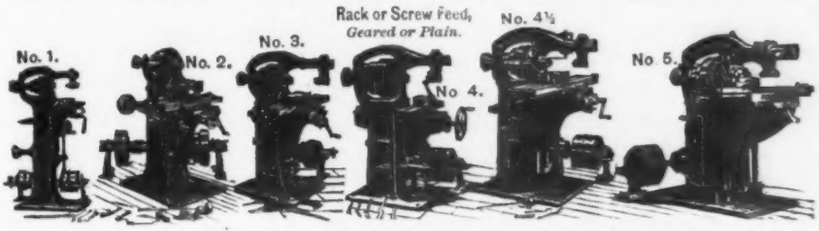


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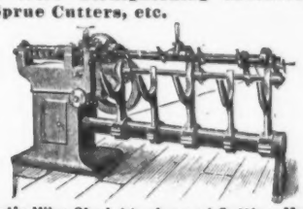


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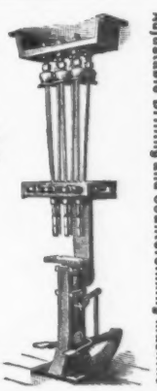
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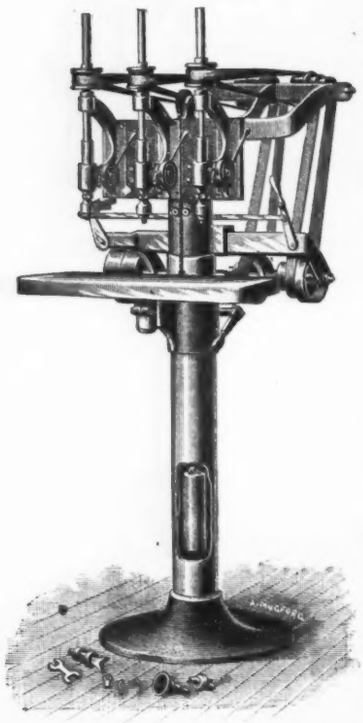
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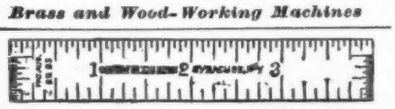


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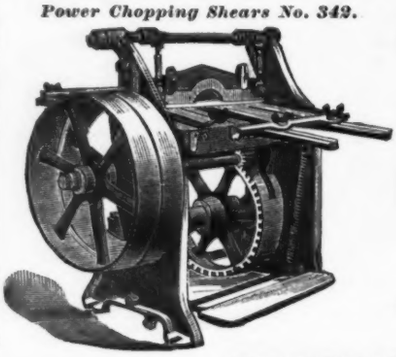
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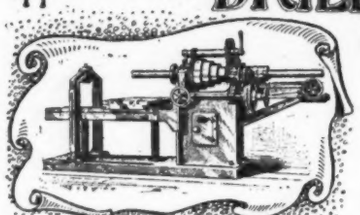
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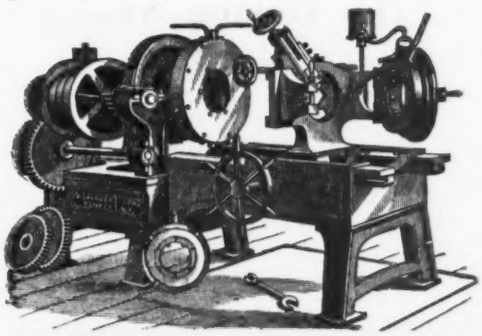


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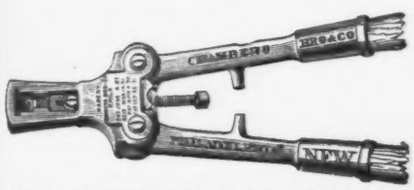
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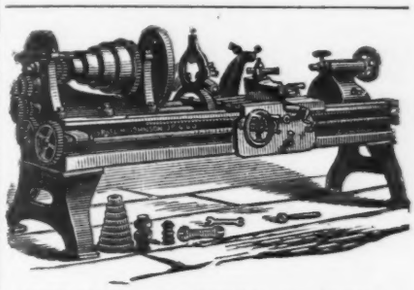
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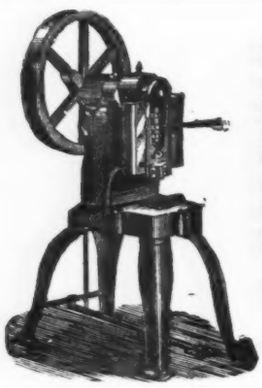
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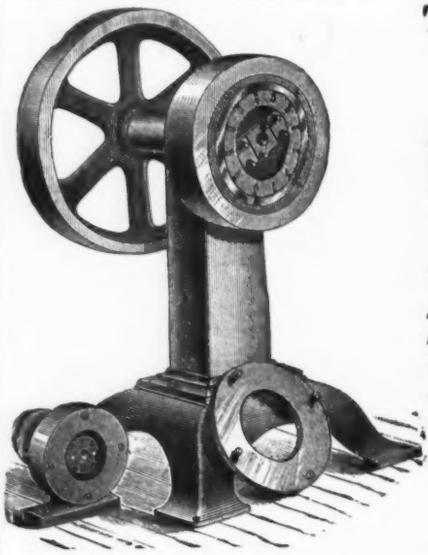
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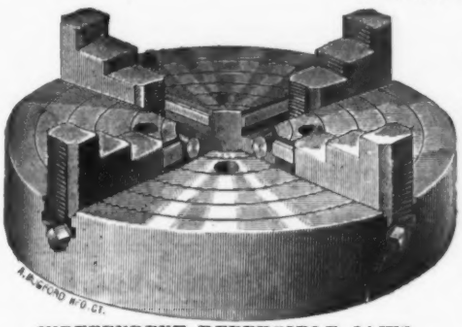
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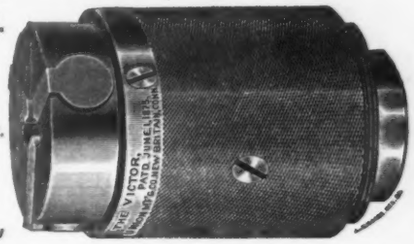
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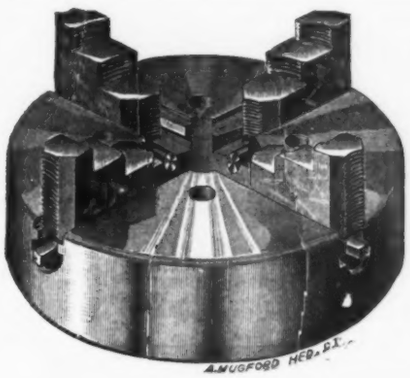
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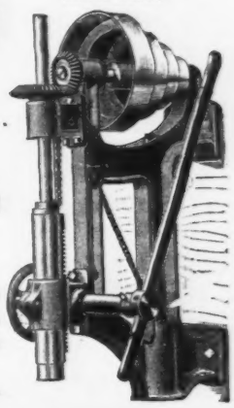
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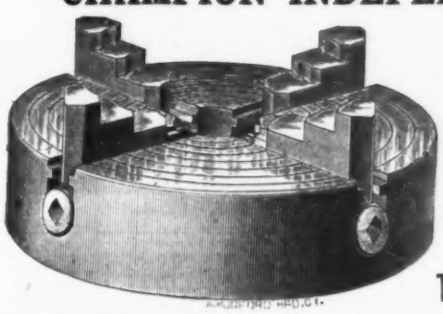
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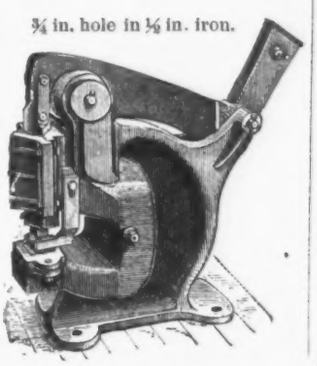


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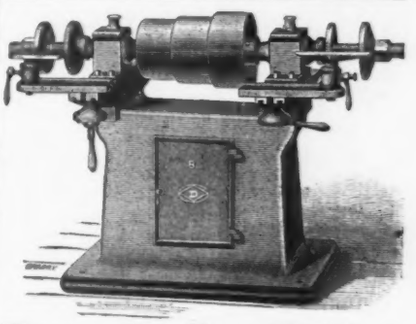
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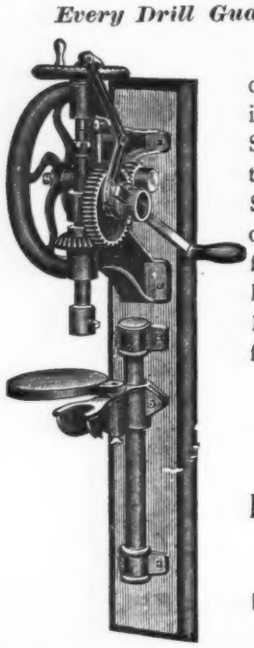
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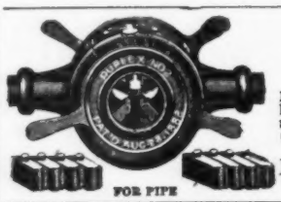
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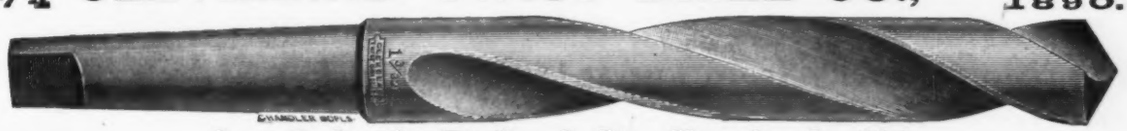
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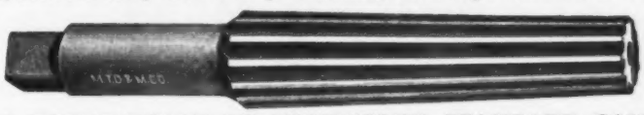
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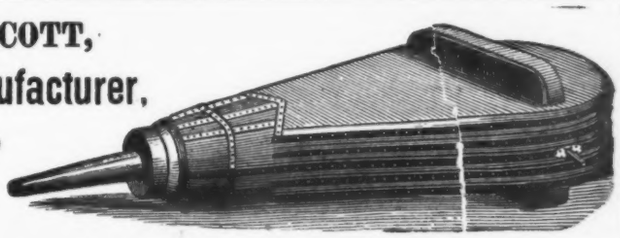
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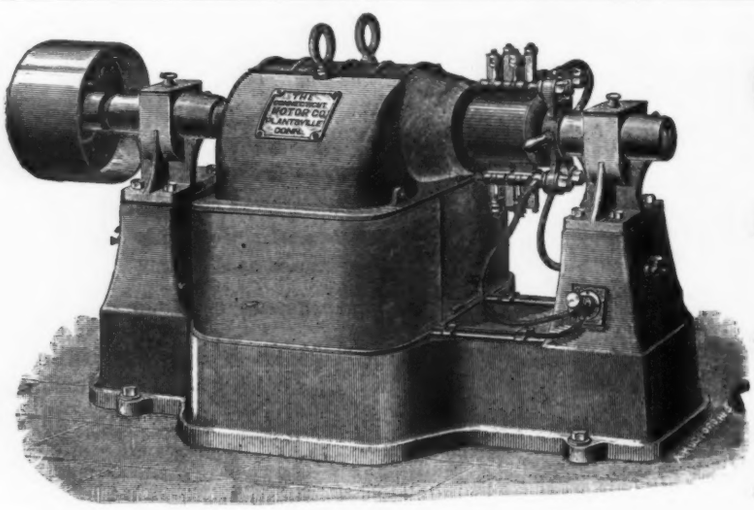
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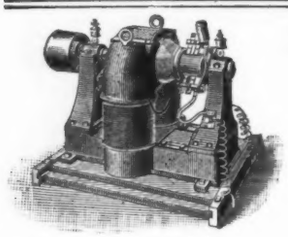
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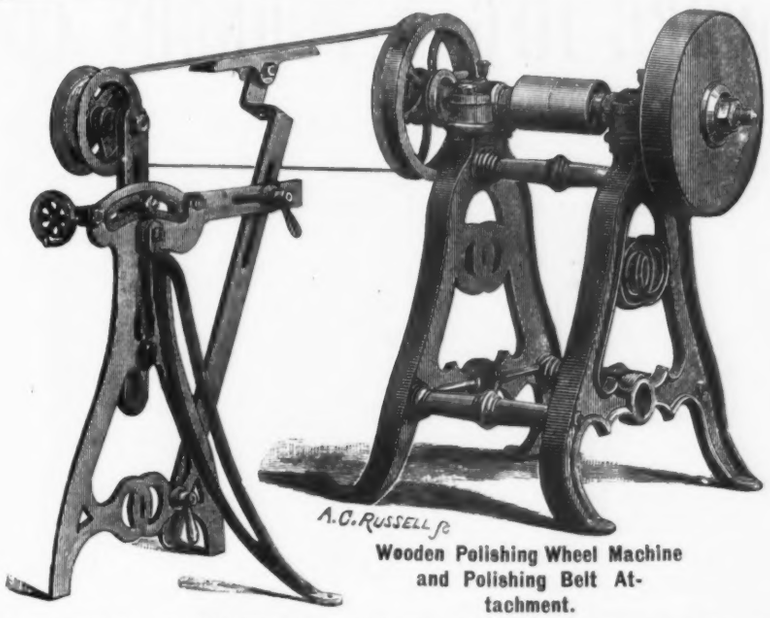
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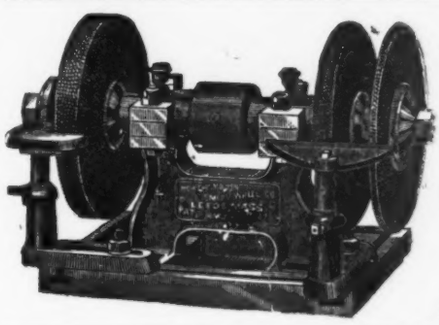
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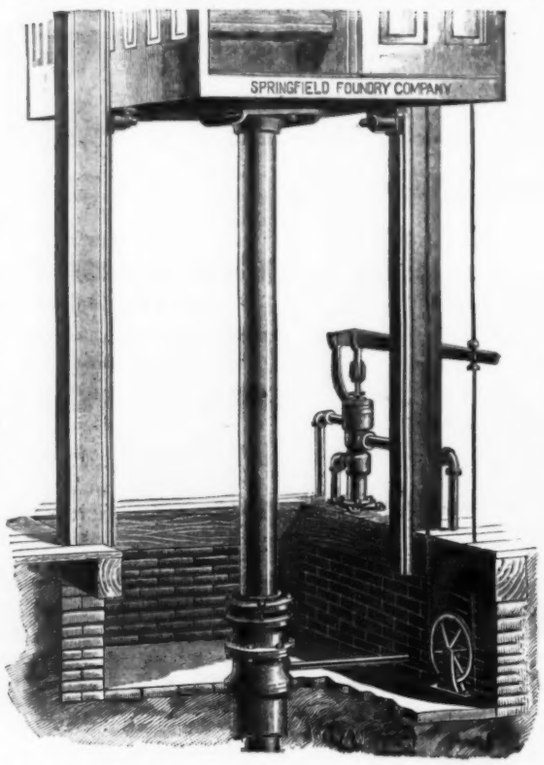
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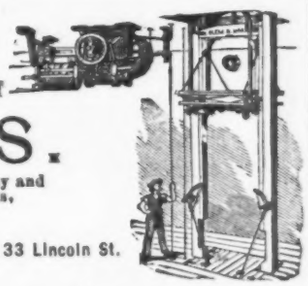
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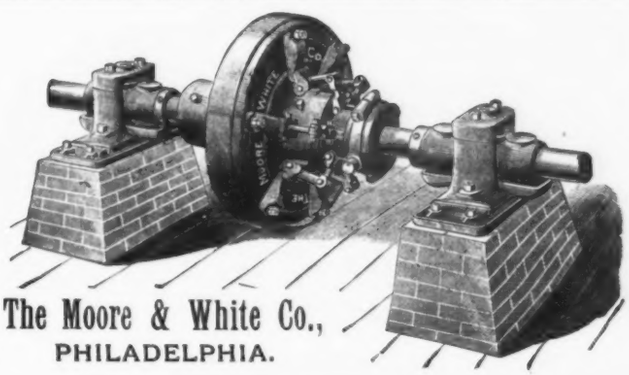
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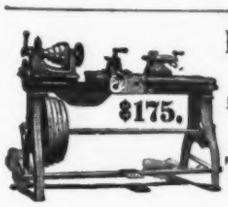
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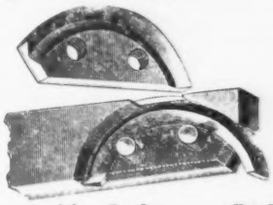
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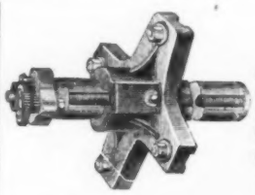
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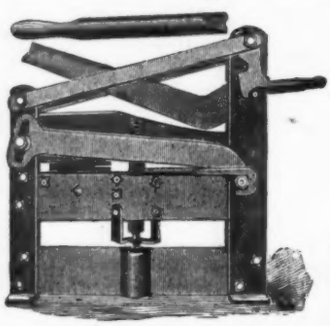
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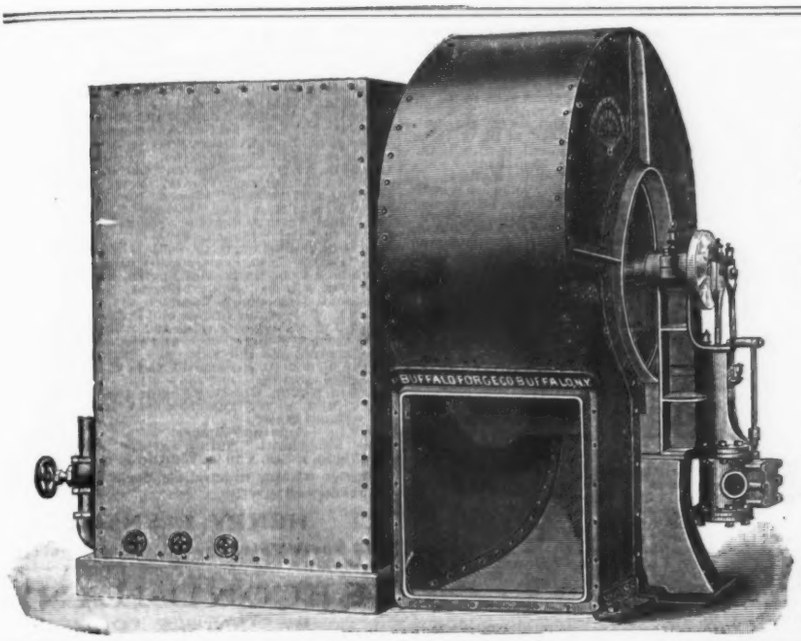
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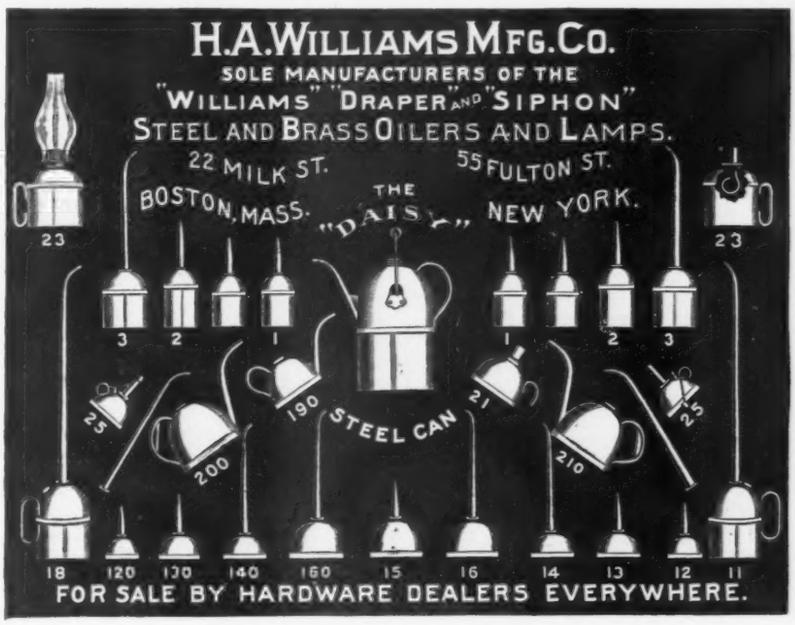
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Also wholesale dealer in scrap iron, steel and metals, second-hand machinery, engines, boilers, pipe, old railway material.

FOR SALE.

A Corliss Upright Steam Engine, 40 in. cylinder, 42 in. stroke, with 40 ton fly wheel, made by Corliss. Also a train of 24 in. Rolls for rolling Steel Plate 16 in. down to 16 gauge; the housings are heavy enough for a three high 30 in. train; they were made for a 30 in. Blooming train; both engine and train are in first-rate condition, and can be seen at the Old Norway Steel and Iron Works, South Boston; any communication addressed to THOS. GOGIN, 61 Thomas Park, South Boston, will have prompt attention.

FOR SALE —One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address
VULCAN IRON CO., LTD.,
New Castle, Lawrence Co., Pa.

FOR SALE, SECOND HAND.

We have several second-hand Berryman Feed Water Heaters, all in good condition, which have been replaced by larger heaters of same make; we have also a number of heaters of various makes and sizes taken in exchange for Berryman heaters, which we will sell cheap; Feed Water Heaters bought, sold or exchanged.
BENJ. F. KELLEY & SON,
91 Liberty Street, New York.

SCRAP DEALERS.

Am instructed to sell for scrap a 24 ton saddle tank locomotive, Grant, 15 x 20. Make offer per ton to H. H. MANSFIELD,
52 Wall Street, N. Y.

PLATE MILL.

FOR SALE CHEAP, 26 in. Plate Mill; Rolls 92 in. long; all in good order. For information apply to

MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address.
"MISSOURI,"
office of *The Iron Age*, 220 S. 4th St., Philadelphia.

CHEAP BEFORE REMOVAL.

1 50 H.-P. Sotter Bros. R. T. Boiler, 48 in. x 16 ft.; safe working pressure, 90 lbs. allowed; complete with full fronts and all attachments; only slightly used.
L. F. SEYFERT'S SONS,
437-441 N. 3d St., Philadelphia, Pa.

The best investment now offered to speculative capital is

Coal, Zinc and Mineral Lands

in Southwest Missouri and Southeast Kansas. If you want to buy, investigate by addressing
FRANK PLAYTER,
Investment Broker,
Pittsburg, Kan.

"THE MAISON BEER,"

Mechanical Engineers, at Jemeppe (Liege), Belgium, wishes to introduce in the United States its patent

WIRE ROPEWAY,

and solicits correspondence with some prominent American firm for sale of the patent.

WANTED.

15 in., 18 in., 24 in. and 30 in. lathes, 2 planers, 2 drills, 2 shapers, 1 Fox lathe and 1 Boring Mill for cash and houses paying 10 per cent,

ISAAC GRAHAM,
1302 N. 28th St., Philadelphia.

For Sale or Lease.

A Rolling Mill in the city of Chicago, well equipped and located for city trade. Capacity of about 100 tons of bar iron per day. It has one 10 in. and one 18 in. train, also one 18 in. muck train. Owners will take all or part of pay in bar iron. For particulars address
"ROLLING MILL,"
office of *The Iron Age*, 59 Dearborn St., Chicago.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot, unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.
WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

FOR SALE.

Manufacturing Plant suitable for Foundry and Machine Shop or most any manufacturing business; 3½ acres of ground, new buildings, engine 20 x 42, boilers, shafting, pulleys, hangers, natural gas in abundance, railroad switch into buildings. For full particulars address
"O. R. S.,"
Box 878, Pittsburgh, Pa.

FOR SALE.

The Rolling Mill Property recently operated by James Rowland & Co., situated on Delaware Ave., above Poplar St., Philadelphia. The property consists of three large lots, including a Wharf, Brick and Frame Buildings; Valuable Machinery in good running order, including 4 trains of Finishing Rolls, 8 in., 12 in., 15 in. and 18 in.; Steel Plate Mill, Nail Mill, 11 Double Puddling Furnaces, 6 Heating Furnaces, Sidings, Artesian Wells, &c. For further particulars apply to R. HECKSCHER & SONS, or at the office on the premises, 920 N. Delaware Ave., Philadelphia.

FOR SALE.

MACHINE SHOP fitted for manufacturing purposes and repair work; 2 floors 28 x 48, well lighted; possession immediately. Address
"MACHINE SHOP,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

CAN WE SERVE YOU?

If you have a stock of Hardware to SELL in any city or town in the U. S.

If you want to BUY a stock of Hardware in any city, town or village in the country.

If you want a traveling salesman for Hardware.

If you want a position as traveling salesman for Hardware.

If you want a tinner.

If you are a tinner and want a position.

Write the MERCANTILE EXCHANGE,
Macon City, Missouri.

All correspondence confidential.

PIG IRON

converted into **MUCK BARS.** The operator of a Puddle Mill in Eastern Pennsylvania is prepared to arrange with owners or makers of Pig Iron for its conversion into Muck Bars for them, on favorable terms. Address
"PUDDLE MILL,"
office of *The Iron Age*, 220 S. Fourth Street, Philadelphia, Pa.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

IDLE CAPITAL

should visit and investigate the advantages now being offered by Pittsburg, Kas. It is going to be a great big mining, manufacturing and smelting city of **100,000** people in a few years, because of its cheap fuel, raw material, railway facilities and central location.

WEALTH

PITTSBURG, KANSAS, offers exceptional advantages to capitalists, investors, manufacturers and all reputable business concerns. Property cheap now, but advancing daily. Investigate quick. Address for particulars, PITTSBURG TOWN CO., PITTSBURG, KANSAS.

For Sale at a Bargain

To anyone who wishes to purchase for their own use.

1 Pease Planer, to plane 24 in. wide, 22 in. high and 6 ft. long.
1 25-Light Dynamo for Incandescent Lights.

DANIEL KELLY,
51 North 7th St., Philadelphia, Pa.

THOMPSON C. GILL & CO.,

210 S. Third St., - Philadelphia, Pa.

Dealers in all kinds of

SCRAP IRON, &c.

Correspondence Solicited.

For Ship Building or Tin-plate.

300 to 750 feet front on Delaware River, 1000 feet deep, including well equipped machine shop, foundry erecting shops, pattern shops, brass foundry and store room; will sell or join company to increase business in any direction, no better location on Delaware River; also R. R. facilities. For plans &c., apply to
W. G. HOWELL,
3343 North 17th, St., Philadelphia.

ONE OR TWO GENTLEMEN

TO PURCHASE

President's $70,000 interest Incorporated Manufacturing Company. Seller will loan company $100,000 to increase business if desired.
"A. L. B.,"
Carrier 22, Buffalo, N. Y.

FOR SALE.

1 20 in. x 12 ft. Gray Lathe.
1 19 in. x 8 ft. New Haven Lathe.
Address
THE GORDON STEAM PUMP CO.,
Hamilton, Ohio.

ESTABLISHED BUSINESS

FOR SALE.

A Rare Opportunity.

A clean stock of Hardware, House-furnishing Goods, Builders' Hardware, Stoves and Tinware; in a thriving town in Southern New York; only Hardware store in the place; excellent stove trade; business built up and in a healthy condition; established 10 years under present management. Total business this year about $30,000, with good profits; stock will invoice about $6000; good reasons for selling. A splendid opportunity for parties with push and ability. Write at once to

"GOOD BUSINESS,"

office of *The Iron Age*, 66 and 68 Duane st., N. Y.

FOR SALE. BLOWING ENGINE.

Vertical pattern, with balanced steam slide, valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address

JAMES LEFFEL & CO.,
Springfield, Ohio.

FOR SALE.

Rare Opportunity.

Best Hardware business in a thriving Ohio city of 20,000 inhabitants; stock. $25,000 to $30,000; annual sales, $80,000 to $90,000, with good profits; no hand stock; open until Jan. 1, 1891.

Address "BEST,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER,
115 Dearborn St., Chicago.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
338 and 342 E. 7th St., St. Paul, Minn.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.

THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

FOR SALE.

On account of poor health I wish to sell at once, to the party making me the best offer, my stock of builders' and general hardware, tools, paints, oils, &c. Business has been established nearly six years; have two exclusive agencies on builders' hardware which bring good sales and large profits; stock invoices about $6000; yearly sales $17,000; expenses very low; located in Newark, N. J. Address JOHN A. CLARK, 85 Springfield Avenue, Newark, N. J.

FOR SALE.

A half interest in an established and well paying business handling Pig and Bar Iron, Steel and Cast Pipes, with headquarters at Nashville, Tennessee, and having an established trade in the states of Tennessee, Georgia, Mississippi, Alabama, Florida, North and South Carolina and Texas. Will sell only to a man who thoroughly understands this line of business and who can furnish satisfactory credentials as to character, ability, &c. For further particulars address "FACTOR," office of *The Iron Age*, 66 and 68 Duane St., New York.

READ—WRITE.

When in want of supplies advise what and writer will name bottom figures, also put you in communication with manufacturer or dealer; to ascertain object of this advertisement write to

H. H. MANSFIELD,
52 Wall St., New York.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

PATTERNS FOR SALE.

Assorted Brass Patterns for use in manufacturing light hardware; also four (4) Japan Ovens complete with shelves. Write for particulars.

NATIONAL BOLT, NUT & RIVET WORKS,
P. O. Box 243, Reading, Pa.

Free Land, Gas (Fuel), fine R. R. Facilities

to a responsible factory wanting to change and better its location. One Cincinnati Factory saves $125 per day by moving, 10 per cent on $300,000 invested. Address

PHILETUS EYCKE,
Washington, C. H., Ohio.

WANTED TO BUY.

Pratt & Whitney No. 1 screw machine; Pratt & Whitney No. 1 six spindle gang drill; Pratt & Whitney No. 2 power milling machine with sliding tail stock; Pratt & Whitney 13 in. engine lathe, 10 in. hand lathe; quote net cash prices.

LEFEVER ARMS CO.,
Syracuse, New York.

WANTED.

Competent and Reliable parties to Manufacture and Sell Cook's Rotary Ash Sifter on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
21 Grand Ave., Brooklyn, N. Y.

WANTED.

Scrap brass, brass turnings, copper &c.; please advise quantity, condition, point of delivery and bottom price, when will put you in communication with buyer.

H. H. MANSFIELD,
52 Wall St., New York.

NOTICE to Manufacturers and Dealers in Hardware. If you have any good specialty for which you would like to establish an agency, or a surplus stock of goods, please address

JOHN SEYMOER,
113 W. 6th St., Cincinnati, O.

FOR SALE.

In a very pleasant town in New York, a well established and thriving Hardware business; store is conveniently built for the Hardware trade; sickness necessitates this move. Address STILSON & DIBBLE, Franklin, N. Y., or C. A. DOUGLAS, Middletown, N. Y.

WANTED.—Superintendents of Foundries to introduce on commission a process which insures better product and a guaranteed saving Correspondence confidential. Address

BOX 718,
Chicago, Ill.

WANTED.—A partner with from $10,000 to $25,000 in one of the most completely equipped machine shops in the New England States; worth not less than $60,000; situated near the borders of New York, Massachusetts and Vermont; the shops are completely equipped for the heaviest work, and abundance of custom orders and special machinery work may be depended on; a handsome partnership interest will be given—one half for the full amount asked for; partnership to continue for 3 or 5 years; for full particulars. Address "FANNING," office of *The Iron Age*, 66 and 68 Duane St., New York.

Wanted to Buy,

SECOND-HAND LATHES, PLANERS AND SHAPERS. ALL SIZES. MUST BE IN GOOD ORDER AND CHEAP.

60-INCH LATHE WANTED AT ONCE.

FOSDICK & PLUCKER,
4TH and CULVERT STS., CINCINNATI, OHIO.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make COLLECTIONS in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

What Have You You Want Sold?

A thoroughly practical business man, who will start on a business trip through the South and Southwest about January 1st, desires a good line of goods from an established house to sell on commission, or some specialty; can devote about two-thirds of his time to it; well acquainted with Hardware lines. Address

"TWO-THIRDS,"

office of *The Iron Age*, 66 and 68 Duane st., N. Y.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

16 lb. RAILS.

For sale lot of 16 lb. and Light T Rails, fit to relay. Inquire MATTHEW GILL, JR., 308 Walnut Street, Philadelphia.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 13 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9¼ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND. OREGON.

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

WOLCOTT & WEST, SYRACUSE, N. Y.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
Commerce Street, Philadelphia, Pa.

Factory Wanted.

Factory with 50,000 feet floor space in town with ample labor facilities; place within 300 miles of New York City preferred; the company will begin operat on at once, employing 300 female operators. Address

"TEXTILE,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

SPECIAL NOTICE
TO CONSUMERS OF CHARCOAL IRON.

Wyebrooke Charcoal Pig Iron, strictly cold blast.
Has splendid chilling qualities and great strength.
Furnace now in blast and orders can be filled promptly.
For sale by

L. & R. WISTER & CO.,

257 S. 4th St., Philadelphia, Pa.

WANTED.

Agency for Nails, Iron, Stee or Railway Supplies, by an experienced man, personally acquainted with Jobbing, Manufacturing and Railroad trade; adjacent to and West of Chicago, would travel portion of time if necessary; A 1 references given. Address

"J. M. S.,"
office of *The Iron Age*, 59 Dearborn St., Chicago.

FOR SALE.—An established Hardware and Stove business in a well populated section of New Jersey, only thirty miles from New York; stock will inventory at $5,000; will sell entire or half interest. Address "ESTABLISHMENT", office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE, ROLLING MILL.
Unless sooner sold at private sale, the entire property and plant of the Iowa Rolling Mill Company, at Burlington, Iowa, will be offered at public sale to the highest bidder, on the premises, on the 13th day of December, 1890, at 2 o'clock P. M.; property consists of 22 acres of land, 3 dwelling houses, office &c., and the mill buildings, the latter entirely new; one 9 in. and one 16 in. train of rolls, with all necessary gas producers, furnaces, &c. By order of the stockholders; for further particulars address
JOHN F. HOLCOMB, Secretary.

FOR SALE.

The following sizes of the celebrated "Trenton" automatic cut-off engines are now being completed and are ready for immediate delivery. One 330 H.-P., one 180 H.-P., two 60 H.-P., one 40 H.-P., one 80 H.-P. and one 120 H.-P., modern design throttling engine.
Contracts made for castings and machinery of all kinds.
PHŒNIX IRON CO.,
Trenton, N. J.

FOR SALE.

Half interest in first-class Hardware Business, located in Western New York, doing a good, prosperous business; nice, clean stock; will inventory January 1st about $10,000; store large and very convenient; will sell or rent store; reason for selling, wish to engage in other business; this is a rare chance. Address "HALF INTEREST," office of *The Iron Age*, 66 and 68 Duane St., New York.

ROLLING MILL
For Sale.

A large Rolling Mill, together with Spike Mill, Nut and Bolt Works, Fence Factory, Cooperage Shop, &c., situated at Rosedale, Kansas, 2 miles out of Kansas City.

Rolling Mill contains, 9, 12, 18 and 20 in. trains, with spare parts complete.

Bids on this property will be received up to December 1st. For further particulars, a complete inventory will be sent upon application to

HENRY B. STIMSON, Agt.,
5 Lewis Block, Buffalo, N. Y.

WANTED.—Second-hand double hoisting engine, suitable for unloading canal boats; boiler not needed. Address, with full particulars,

BUFFALO STEAM FORGE,
5 Lewis Block, Buffalo, N. Y.

WANTED.—One ten inch merchant bar train; also a pair of shears to cut three inch square iron.
Address
"STANDARD,"
office of *The Iron Age*, 66 & 68 Duane St., N. Y.

WANTED.—An active party with capital say $20,000 to $40,000 and with some experience in manufacture of Muck Bars; mill located near Philadelphia and now running successfully; communications treated confidentially. Address "MUCK," P. O. Box 1086, Philadelphia Pa.

WANTED—Planer to plane not less than 50 inches wide, 54 inches high and 8 feet long; must be in perfect condition; second-hand preferred; state maker, length of service and price.
P. O. BOX 2568, Boston, Mass.

Iron Manufacturers
OF THE NORTH,
COME SOUTH!

Come and use the vast resources of West Virginia. Locate works at Charlestown. Free locations with best of Railroad facilities will be donated, and Cash Capital contributed.
Charlestown is at the junction of the Shenandoah Valley, now owned and operated by the Norfolk and Western, and the Baltimore and Ohio Railroads. The former penetrates the Iron fields of the South and Southwest, reaching the sea at Norfolk, Va., and connecting with the Pennsylvania R. R. North. It is 85 miles from the port of Baltimore by the B. & O. At Charlestown the cheap iron, coal and coke from Virginia and the South meet the iron, anthracite coal and coke from Pennsylvania, besides having vast deposits of superior brown and red Hematite ores on the spot.
The South is going to the front in iron manufacture. Northern manufacturers with their experience and methods, who have the shrewdness to see the opportunity and the courage to make a new departure will, do well to come South. Structural and architectural and railroad supply works, cast and wrought pipe works, stove foundries, car shops, in fact all kinds of iron industries great and small will have great facilities and unusual inducements offered them to locate at Charlestown, West Va.
For full information, address as above.

CHARLESTOWN MI ING & IMPROVEMENT COMPANY.

The Steam Engine Catechism.

A Series of direct practical answers to direct practical questions, mainly intended for young engineers, and for examination questions. By ROBERT GRIMSHAW. Fifth edition, enlarged and improved. 1887. 18mo, cloth. **$1.00.**
Sent, postpaid, on receipt of price, by
DAVID WILLIAMS, Publisher and Bookseller,
66 and 68 Duane St., New York.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A MAN of 20 years' experience as Superintendent would like to have a situation; knows all about mining and separating ores and erecting machinery; 4 years superintending charcoal furnace; 14 years at one place; had charge of 50 to 90 men; no objection to go outside of Pennsylvania; first-class references. Address "SITUATION," Box 52, Fleetwood P. O., Berks Co., Pa.

I WANT another good line, either in Hardware or Cutlery, to represent in Texas and Arkansas, on commission only; only houses that can work large trade wanted; houses having Chicago or Western shipping facilities preferred. If you want your goods pushed and are prepared to pay good commission for doing it, address "TEXAS," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A FIRST-CLASS machinist, as foreman or any responsible position where ability will count; experienced in building marine and stationary engines, hydraulic machinery and rolling mill work; can handle men to advantage and good draughtsman; vicinity of New York preferred. Address "ENERGETIC," Box 40, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

GRADUATED MECHANICAL ENGINEER, ten years' experience in machinery for manufacture of iron and steel, and who has made a specialty of heavy hydraulic machinery, will shortly be open for engagement. Has had complete charge of design and erection of hydraulic forging plants and is at present occupied in such a capacity at large iron works. Parties wishing to correspond, address "HYDRAULIC," office of *The Iron Age*, 220 So. 4th St., Phila., Pa.

POSITION as superintendent of wire nail and wire mill, rolling mill or tack factory; 25 years' experience in building, erecting and superintending above branches. Will guarantee unexceptional testimonials, and build the best machinery in the U. S. for entire outfit of above mills. At present superintendent of large mills. Address "SMITH," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as Superintendent of a Rolling Mill; have had 16 years experience on the different kinds of mills; am practical in the different branches of rolling mill work, and thoroughly understand the system of regenerative gas furnaces and producers. References as to character and ability. Address "ROLLING MILL," office of *The Iron Age*, Hamilton Bldg., Pittsburgh, Pa.

MECHANICAL ENGINEER, scientifically educated and with several years' experience of an unusually varied character, and who possesses business and executive ability of a high order, is at liberty to make an engagement in a responsible position in any part of the world. Address "E. Y. T.," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

A YOUNG MAN, 16 years' experience in General and Builders' Hardware, good Salesman, best of references as to business ability and moral character, would make connection with a good house in a live growing city, where a small amount of capital will obtain an interest in the business. Address "PROMOTION," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, pipe mill machinery, engines and boilers, roof construction, sugar machinery, &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN thoroughly familiar practically with the manufacture of malleable iron castings; also the erection of plant in all its details; and of strictly temperate habits, desires a position as Superintendent or Manager of works with some good firm; been handling men 12 years. Address "DANE," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN who has sold Hardware in the West for past 15 years wishes a position as traveling salesman in the extreme Northwest for some large manufacturer. Address "EXTREME," office of *The Iron Age*, 66 and 68 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

A STEADY, reliable man, aged 34, 16 years experience as a practical brass finisher in a plumbers' supply manufacturer's, desires to connect himself with an established brass works as Superintendent: can handle any amount of hands; as to ability, can furnish the best of reference of 16 years' standing from last employer. "BRASS WORK," P. O. Box 109, Lawrence Station, Long Island, N. Y.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

AS SALESMAN, by a party who has worked in Ohio Trade for five years; wishes to change his line; would prefer Cutlery from American manufacturers, Hardware Specialties or similiar line; good references; state salary paid and other particulars. Address "A SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as Superintendent of Steel Plant; have had 6 years' experience in Beam and Plate Mills at Homestead as Roller and Superintendent of Department; have worked both Bessemer and Open-Hearth steel for four years, also Basic Open-Hearth for 2½ years. Address "BEAM" office of *The Iron Age*, 66 and 68 Duane St., New York.

A BRICKLAYER desires a situation as Foreman in a Rolling Mill; has had several years' experience in building and rebuilding regenerative and open-hearth furnaces and all other repairs, and also understands the nature and making of artificial gas; references can be had where last employed. Address C. WEBSTER, Eighth Ave., Beaver Falls, Pa.

AS SUPERINTENDENT of Blast Furnace, by a practical man of experience in operating and burdening furnaces, including all chemical work; can take hold in any position; best of references. Address "HOT BLAST," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TO SHEET BRASS MANUFACTURERS.—A man with twenty two years' experience in the sheet brass and copper manufacture desires to connect himself with an established works as superintendent; has had thorough experience in the detail and management of all the departments of rolled sheet brass manufactures; he has studied the economies and mechanical problems connected therewith, he can give the best of recommendations as to his qualifications. Address "MANAGEMENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as manager or assistant manager in iron mill or steel plant; have had 15 years' experience in bar, guide and hoop mill, and two years in beam, channels and angles. Address "D. H." office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh, Pa.

POSITION by an experenced Traveling Salesman, who has trade and the acquaintance of all the large buyers and purchasing agents of railroads, hardware and machinists' supply trade. Address "M. M. A.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A RELIABLE MAN with many years experience in machinery and iron work wants a position to be generally useful; best references. Address JOHN B. BENTLEY, 351 Canal St., New York.

BY AN EXPERIENCED Mechanical Draughtsman, specialist on wrought iron structural work, a permanent position from January 1st, 1891. Please address "STRUCTURAL" Box 818, office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A GENTLEMAN thirty-six years old; have traveled six years representing a manufacturer of hardware specialties; well informed; well acquainted with the trade; competent to manage; correspond or travel as salesman; no preference as to territory; references as desired; correspondence solicited. Address "C. E.," office of *The Iron Age*, 66 and 68 Duane St., New York.

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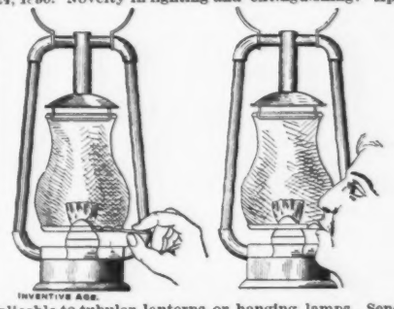
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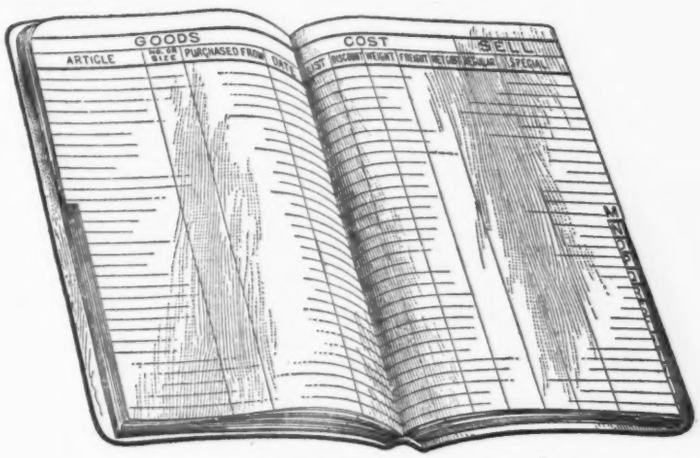
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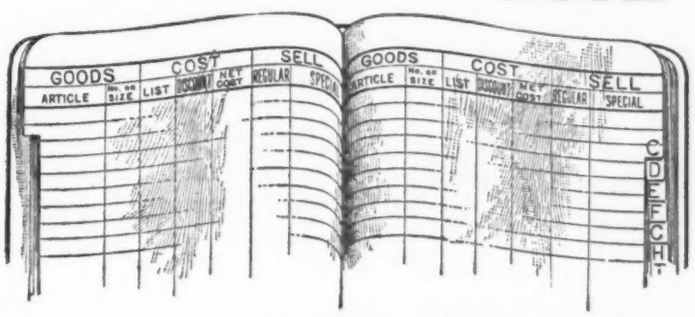
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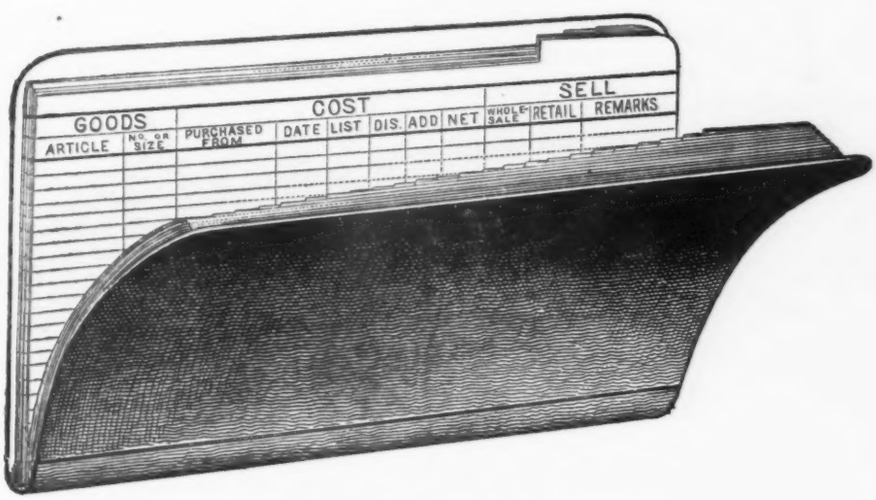
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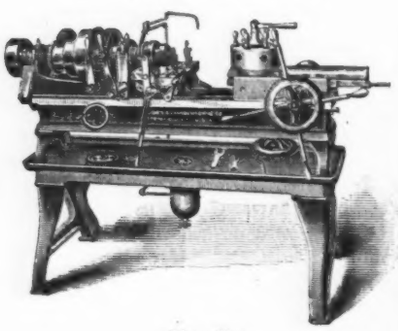
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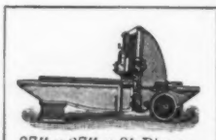
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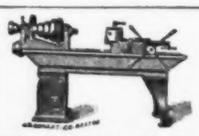
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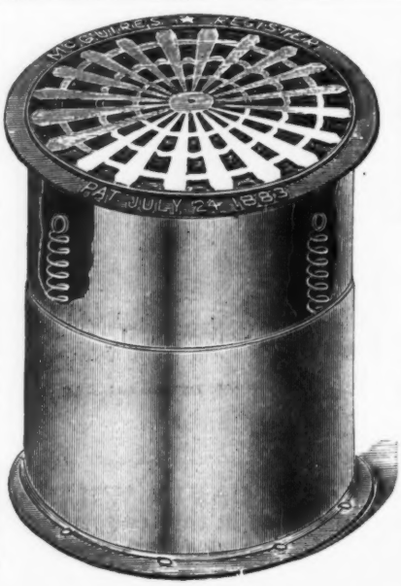
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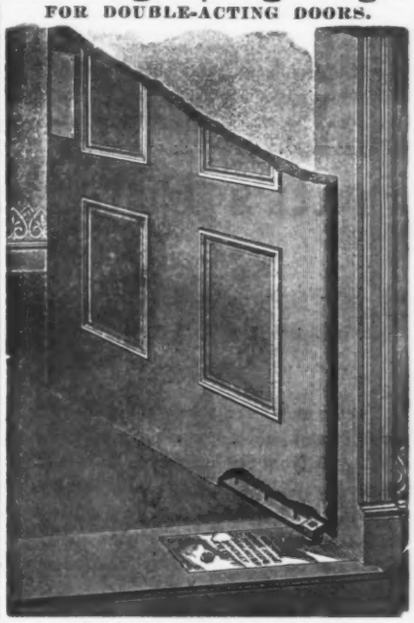
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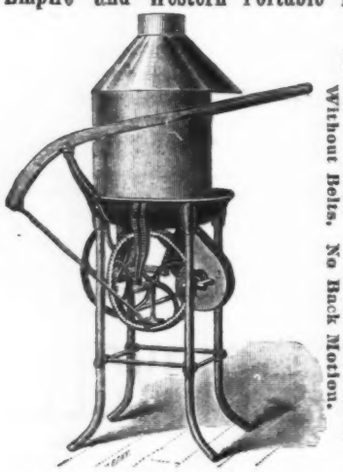
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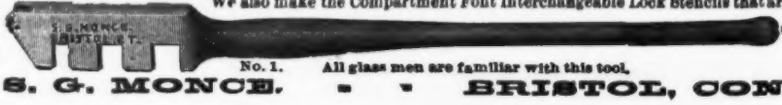
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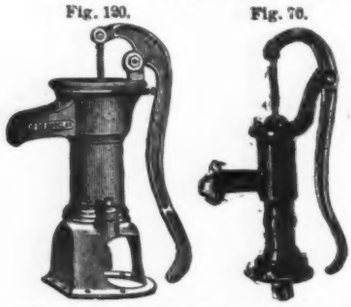
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Fig. 120. Fig. 70.



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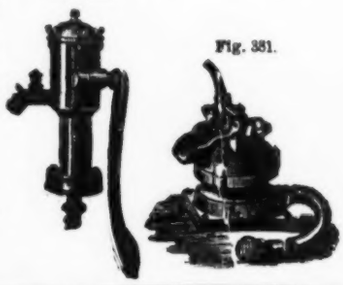
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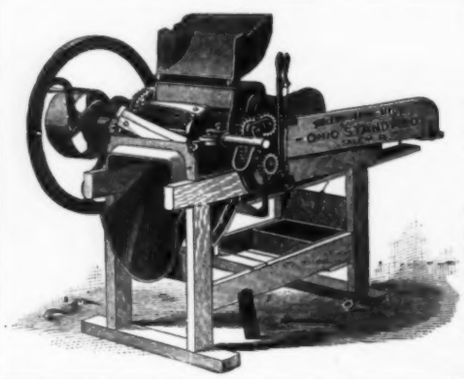


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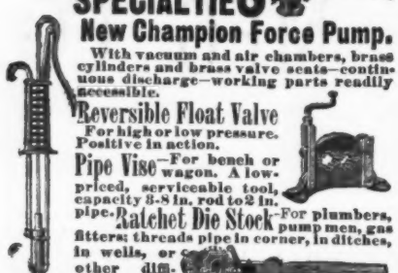
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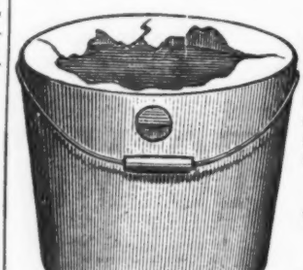
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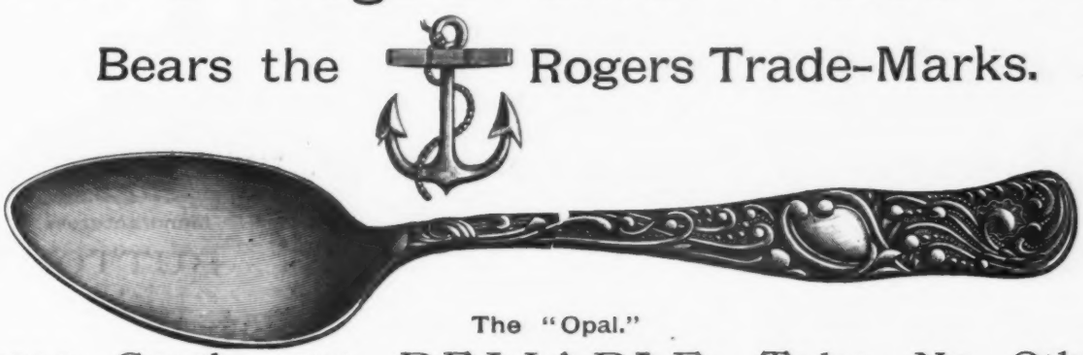
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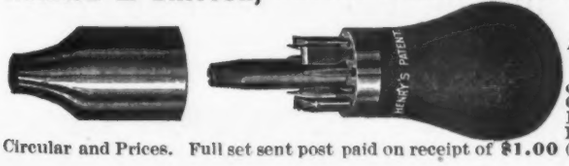
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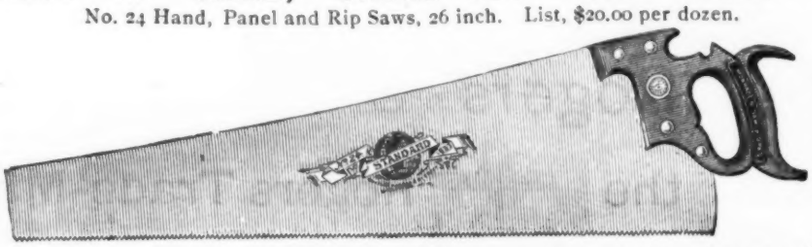
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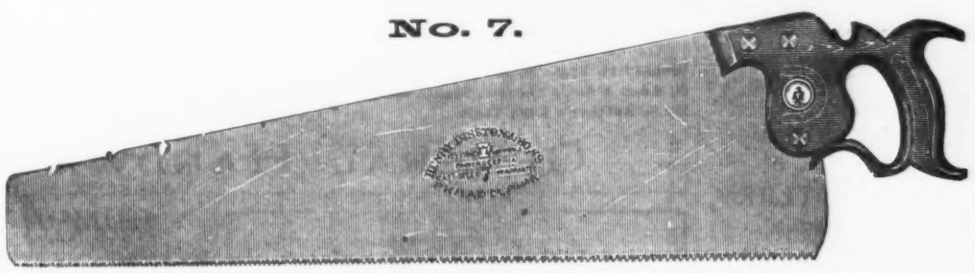
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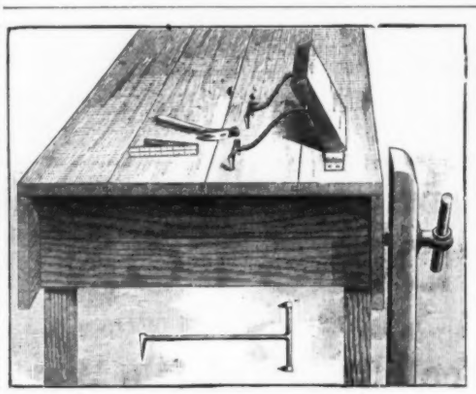
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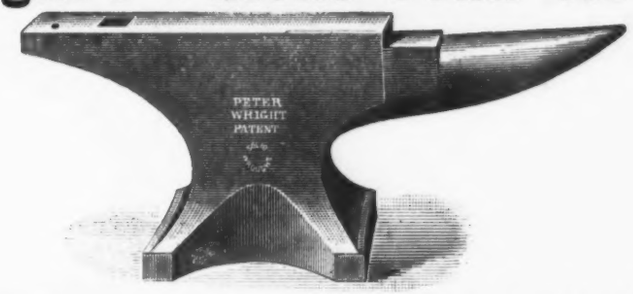
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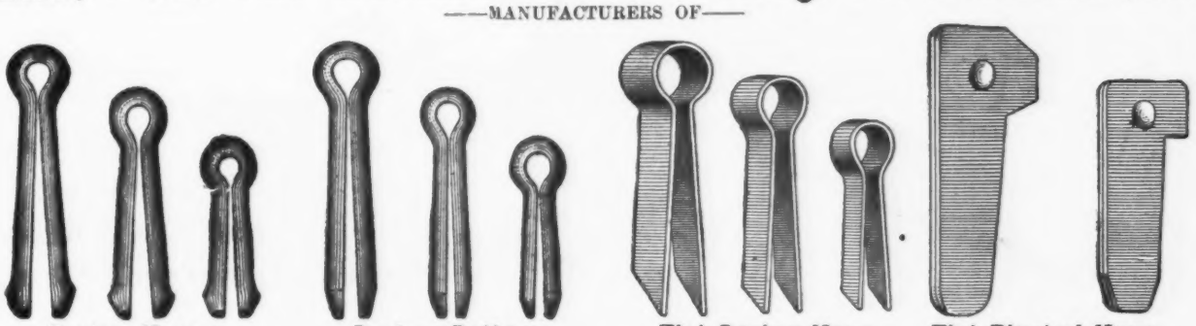
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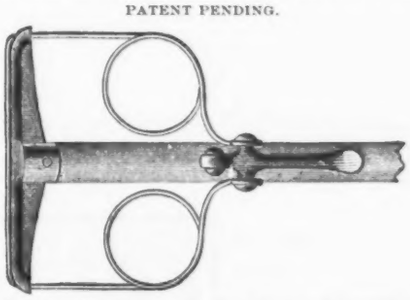
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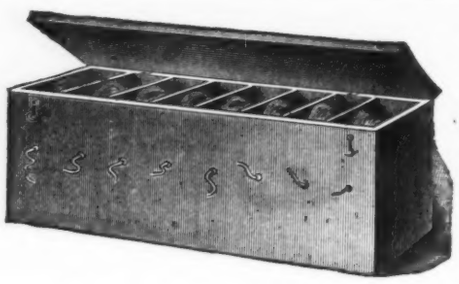


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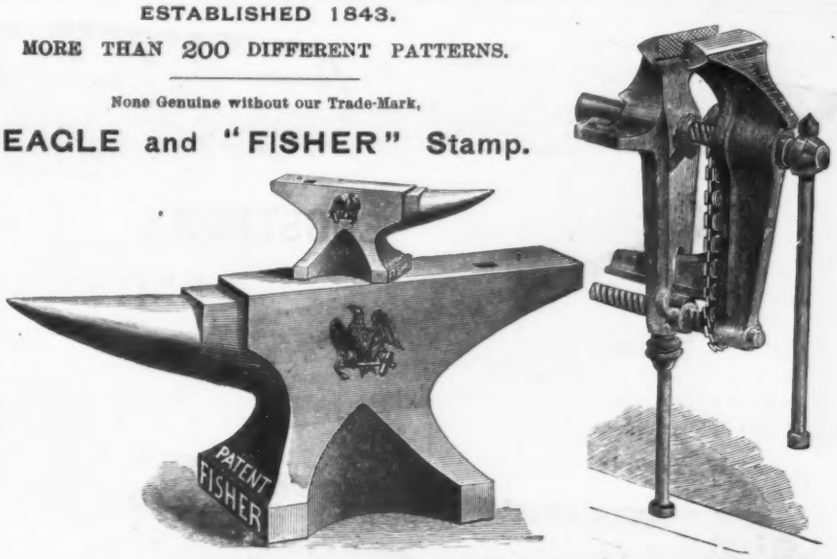
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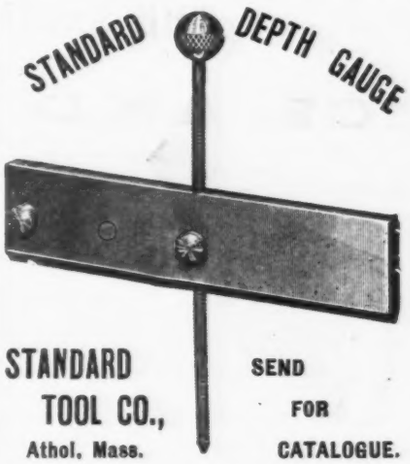
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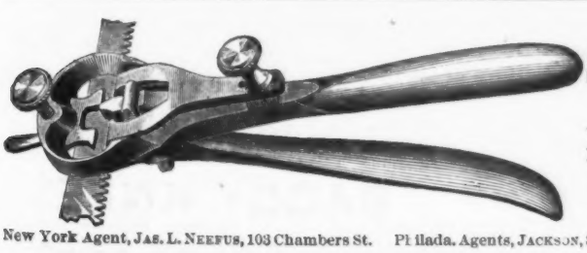
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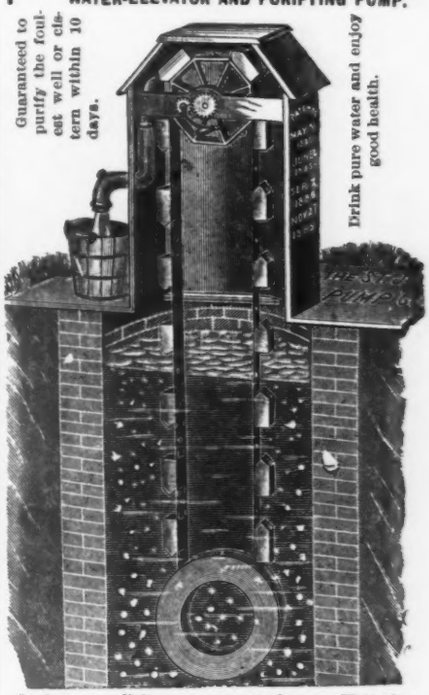
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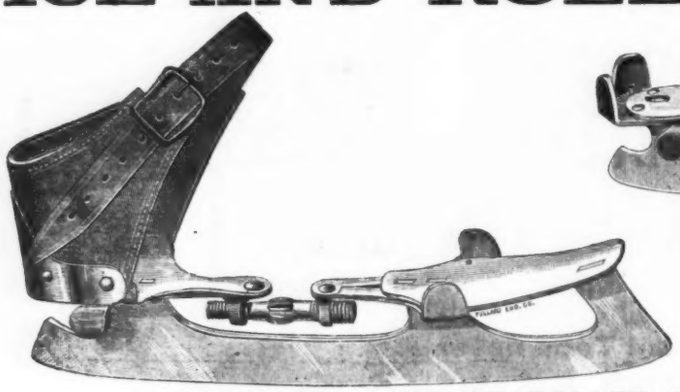
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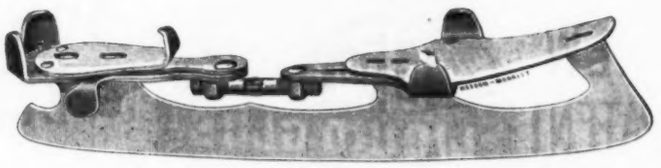
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THE JOURNAL

OF THE

Iron and Steel Institute.

No. 2 1889.

SYNOPSIS OF CONTENTS:—Notes on the Iron and Steel Manufacture in France, and as Illustrated by the French exhibits at Paris, by Prof. S. Jordan. The proposed Channel Bridge, by Messrs Schneider & Co., and H. Hersent. Gaseous Fuel, by Sir Lowthian Bell. The Thomson Electric Welding Process, by W. C. Fish. Alloys of Iron and Silicon, by R. A. Hadfield. A New Form of Siemens Furnace, etc., by John Head and M. P. Pouff. The Robert-Bessemer Steel Process, by F. L. Garrison. Appendix. Notes on the Progress of the Home and Foreign Iron and Steel Industries.

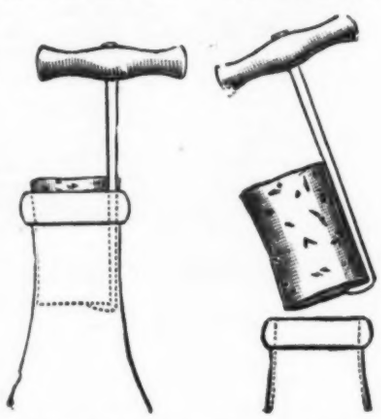
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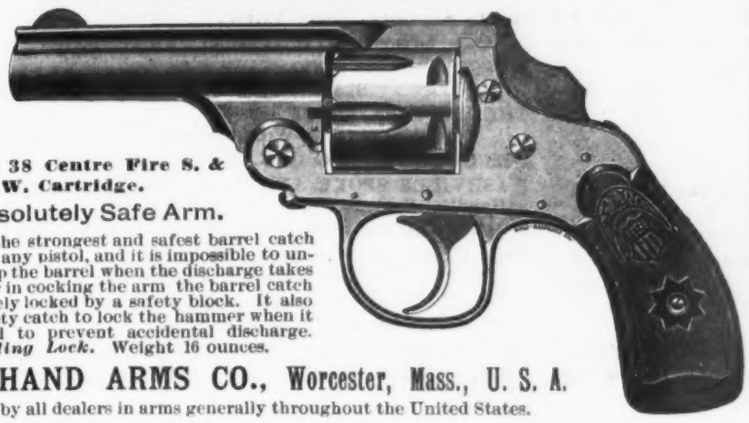
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It has the strongest and safest barrel catch put upon any pistol, and it is impossible to unlock or tip the barrel when the discharge takes place, for in cocking the arm the barrel catch is positively locked by a safety block. It also has a safety catch to lock the hammer when it is desired to prevent accidental discharge. *Rebounding Lock.* Weight 16 ounces.

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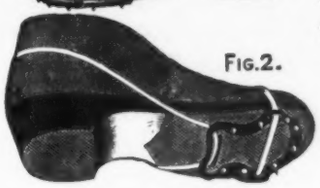


FIG. 2.

These Ice Dogs or Creepers, designed to secure safe-footing on slippery pavements, are the simplest and best ever invented. They consist of a very light, malleable casting of the best quality of iron, fitted for the sole of the shoe and fastened to the foot by means of a toe-strap and an endless elastic band drawn high over the heel, thus holding the dog to its place, and being easy of adjustment, is very quickly put on or taken off.

There are two sizes, for ladies and gentlemen respectively, and the peculiar adjustment attaches them equally well to boots, shoes or rubbers, without difficulty or delay.

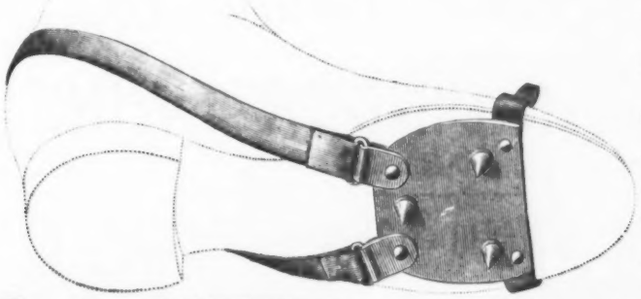
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Send for Circulars showing variety of styles.

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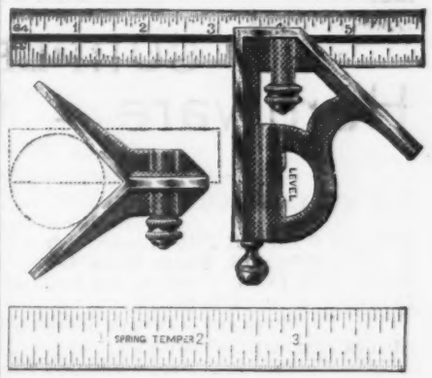
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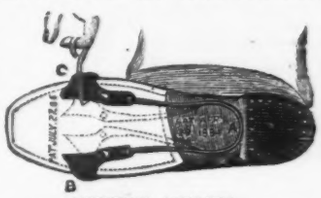
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Packed 20 doz. in case, ⅛ doz. in box; nickel plated keys; stop on latches. For 20 dozen lots add 10c. per dozen; cases, 30c. f.o.b. Kenton. Other goods equally as cheap. Samples sent to intending buyers. At the above prices it requires but a few dollars to complete your line of goods.

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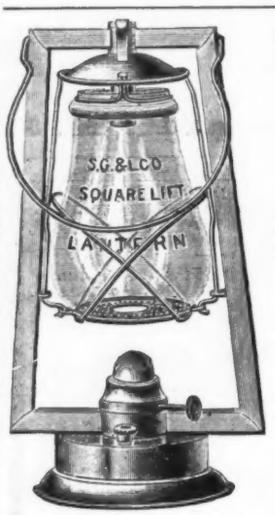
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MEAT CHOPPERS

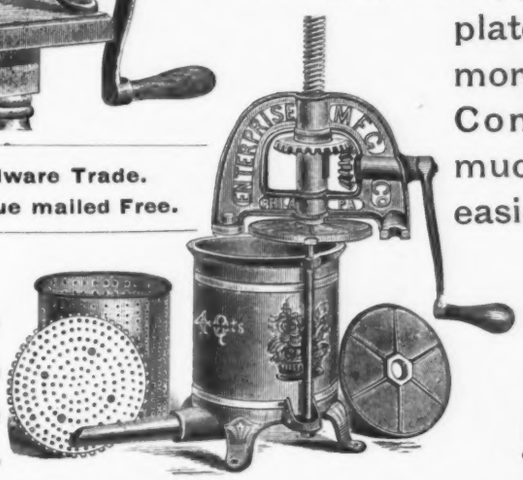
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Sausage Stuffers.

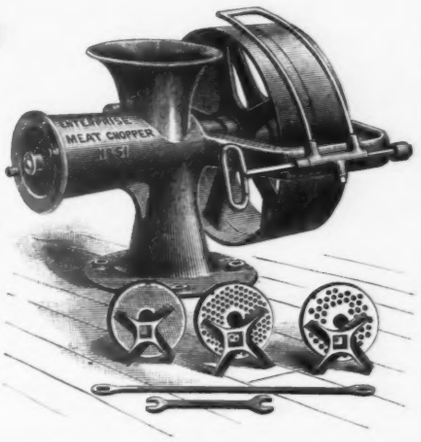
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For Sale by the Hardware Trade.
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Our Sausage Stuffers are decidedly the easiest working and most durable machines ever manufactured and are unexcelled for butchers' and farmers' use.



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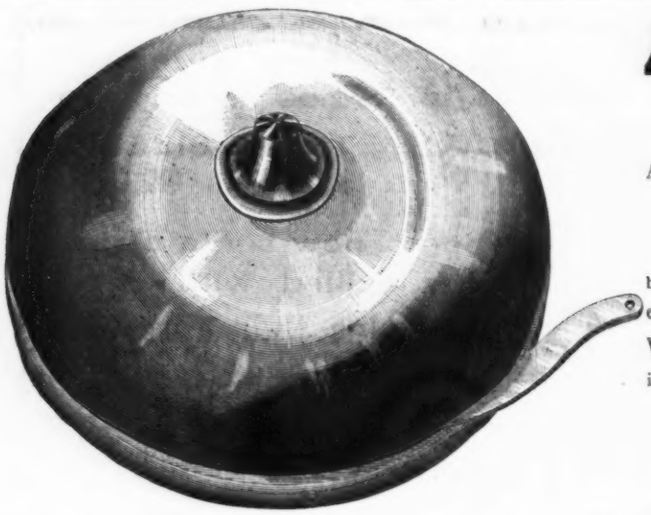
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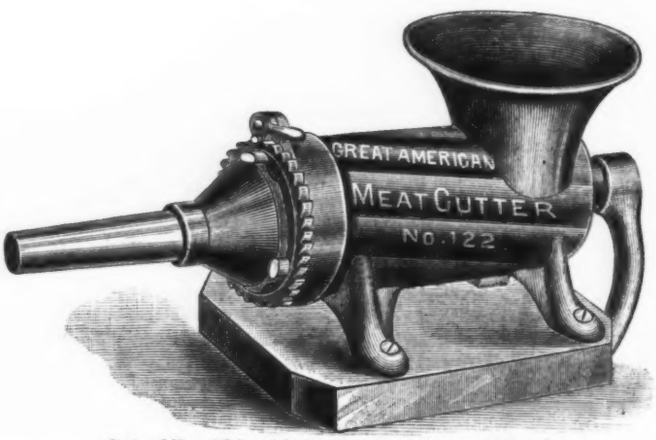
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Cut of No. 122 with Stuffer Attachment affixed.

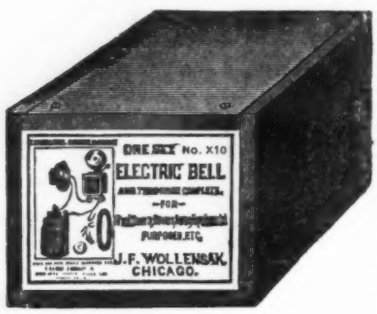
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" 122,			4 "	"	"	4.00
" 124,	40-inch Fly-Wheel,	300 "	per hour,	each,		25.00
" 126,	to screw to table,	200 "	"	"		8.00
" 128,	40-inch Fly-Wheel,	350 "	"	"		30.00
" 130,	Geared, ½ power,	250 "	"	"		20.00
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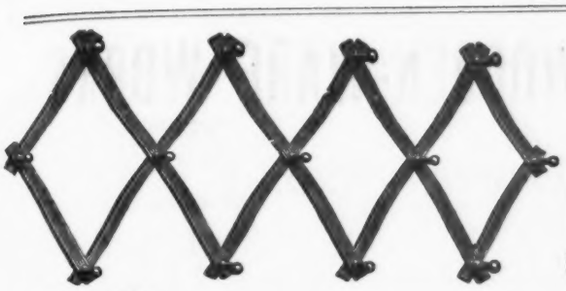
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Thanking you for past favors, we remain,

Respectfully,

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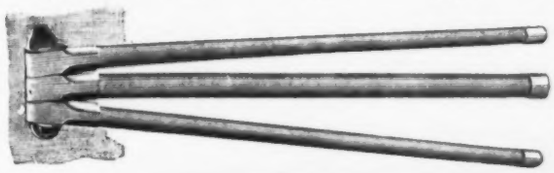
621-623 Cherry St., Philadelphia, Pa. Mills, Readsboro, Vt.





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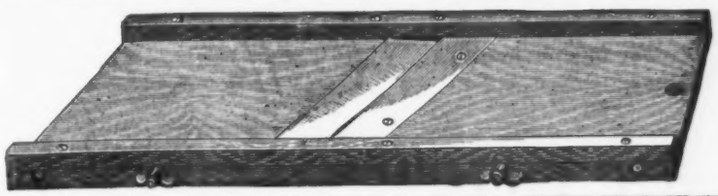
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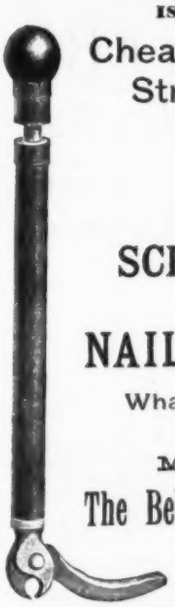
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Can't Hurt the Hand

IS THE

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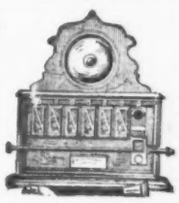
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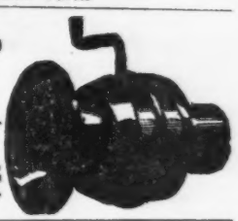
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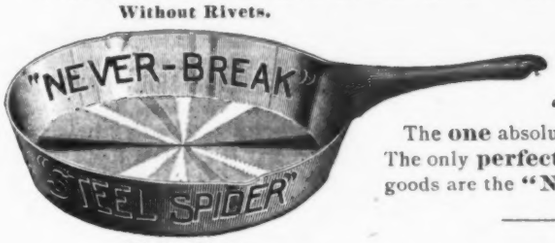
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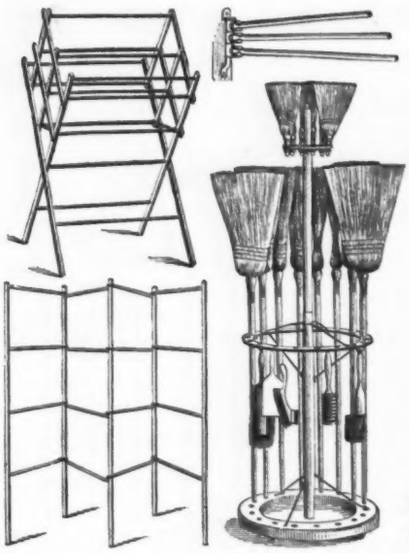


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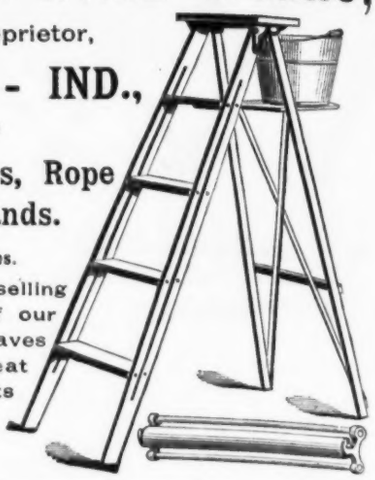
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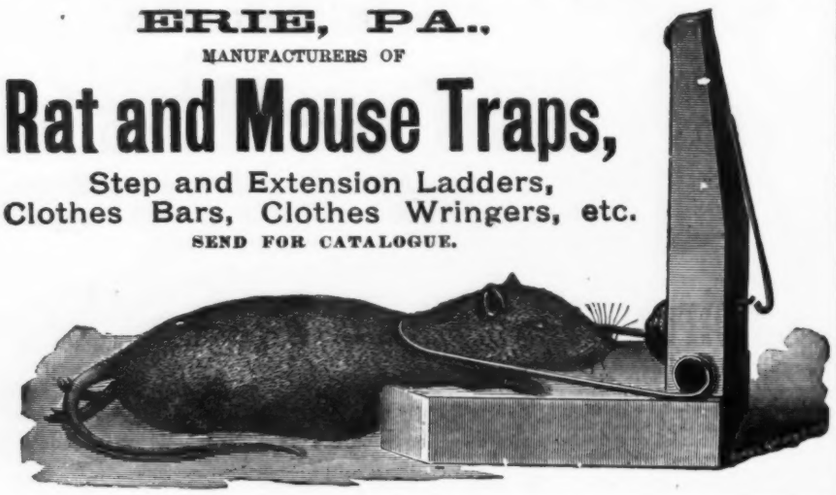
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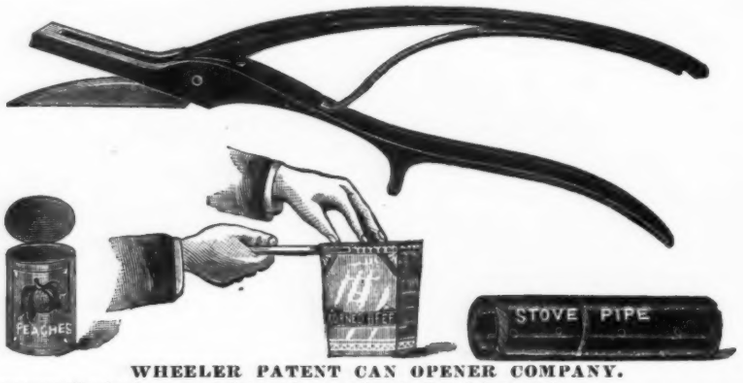
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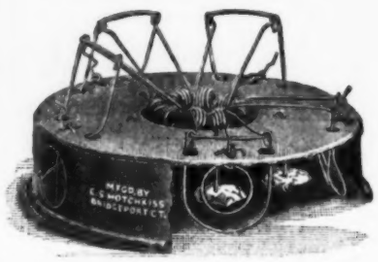
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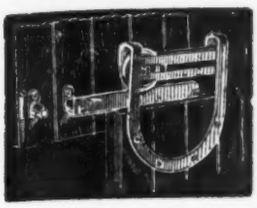
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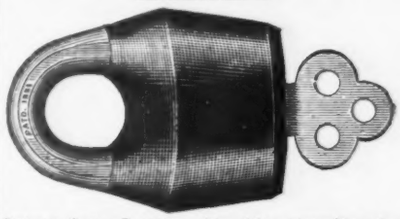
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"TRIUMPH" WIRE CHAINS, Halter Chains, Dog Chains, Kennel Chains, Coil Chains, &c.; the most perfect Chains made for their various purposes; made of **Steel Wire** and possess great strength; much lighter than sheet metal or welded chains; no sharp edges; do not kink; no bad welds; in fact the most salable and serviceable chains the trade can handle. Also "Monarch" Sash Chain, Plumbers' Safety Chains, &c. Send for catalogue.

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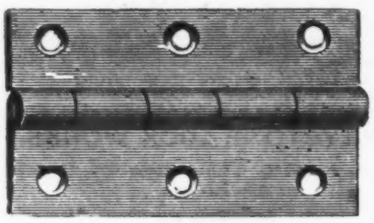
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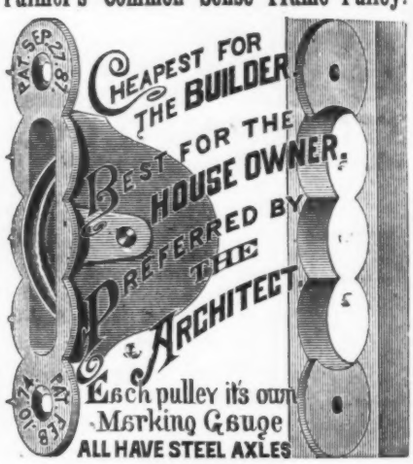
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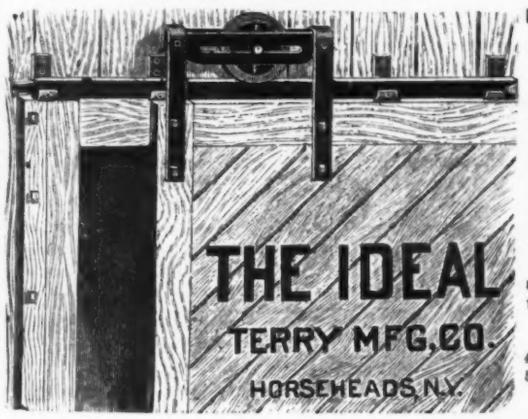
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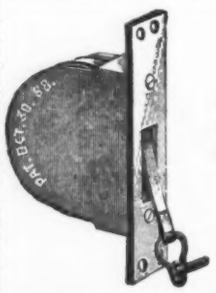
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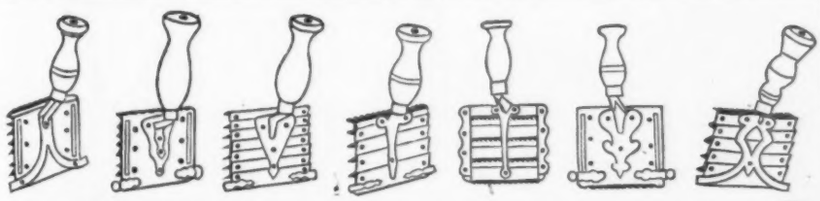
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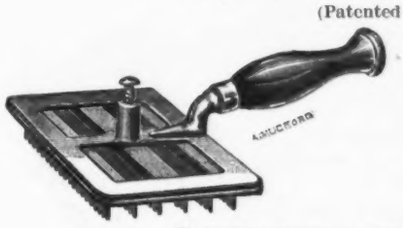
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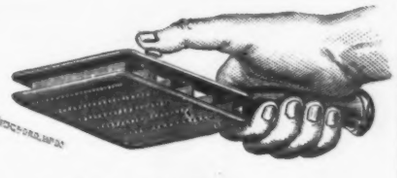
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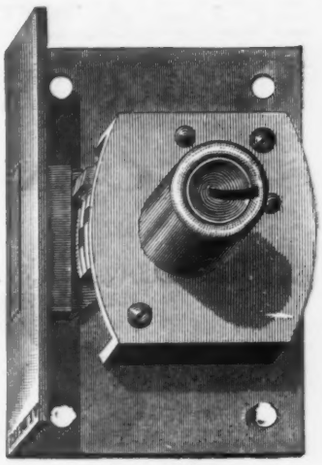


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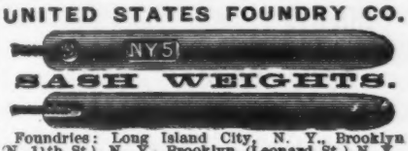
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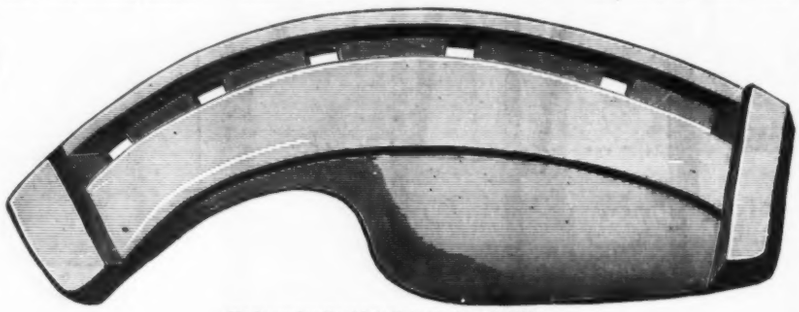
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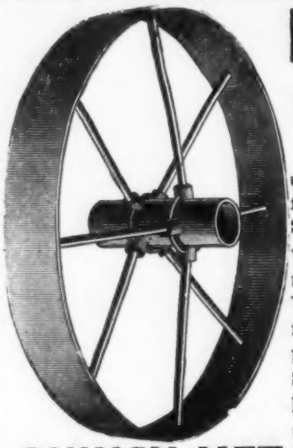
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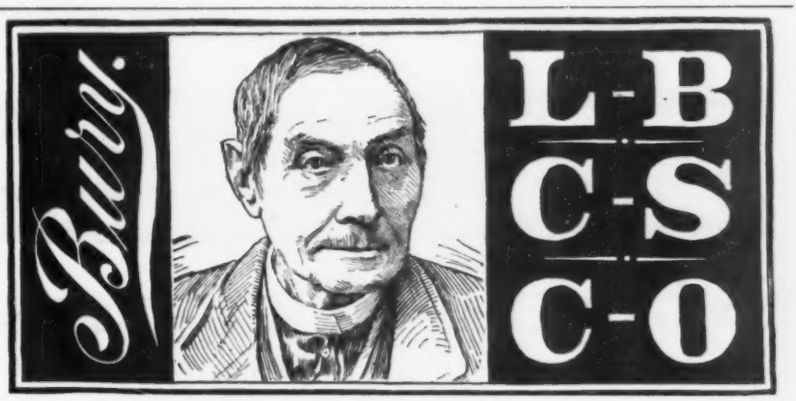
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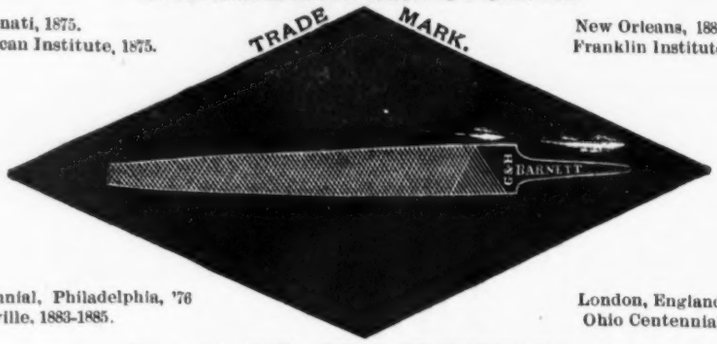
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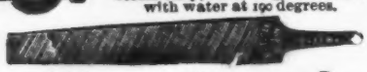
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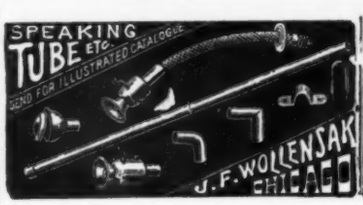
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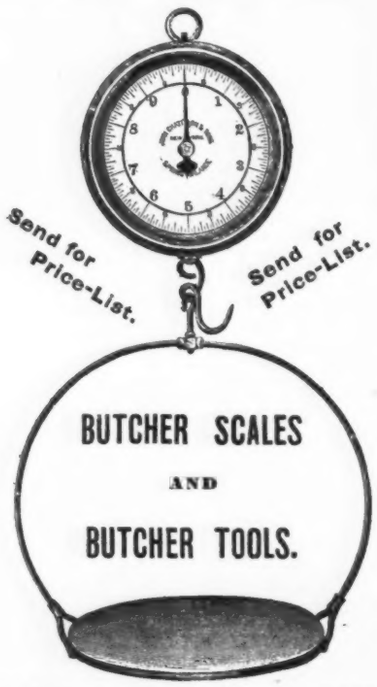






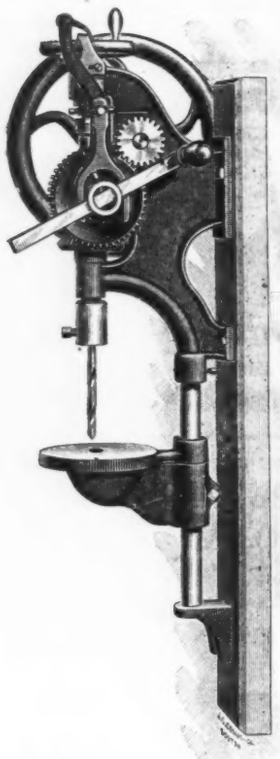
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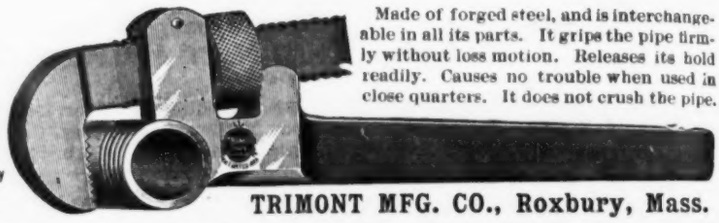
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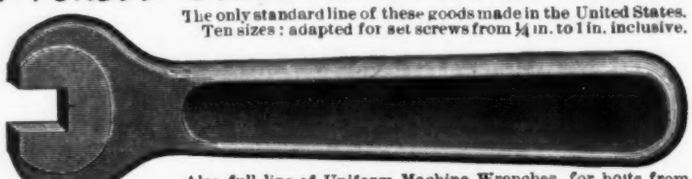
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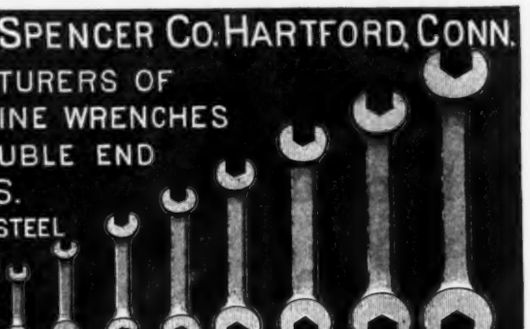
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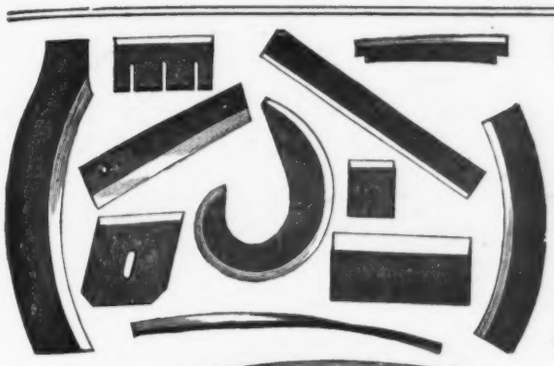


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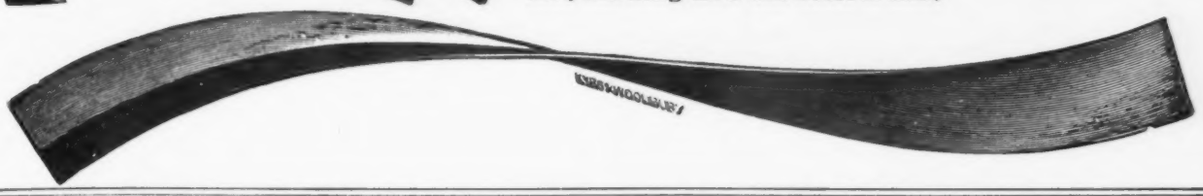
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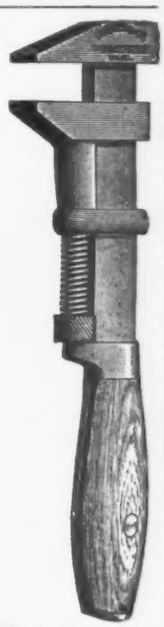
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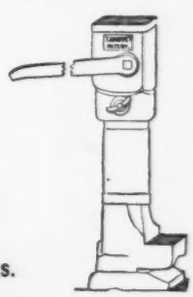
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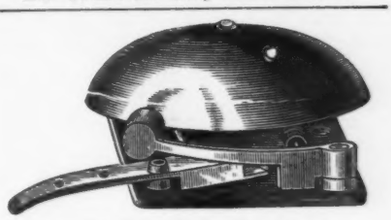


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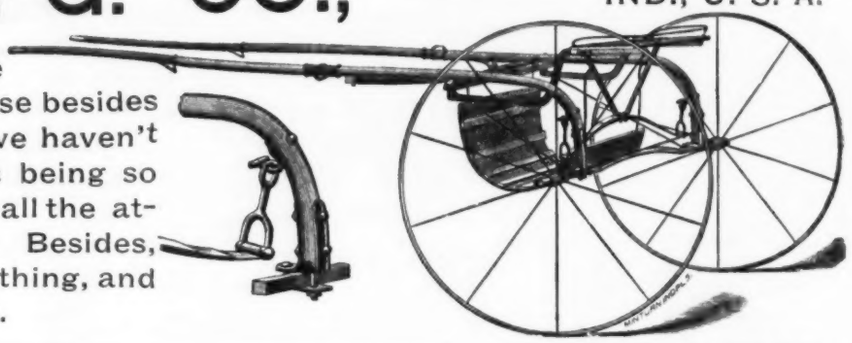
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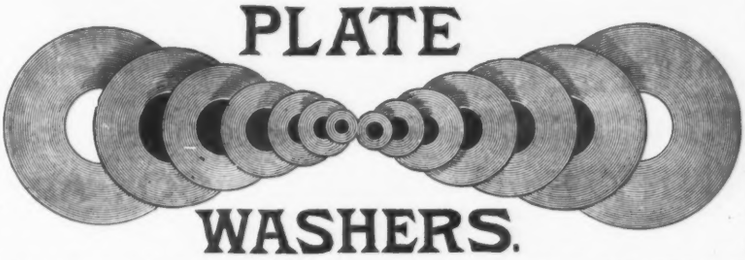
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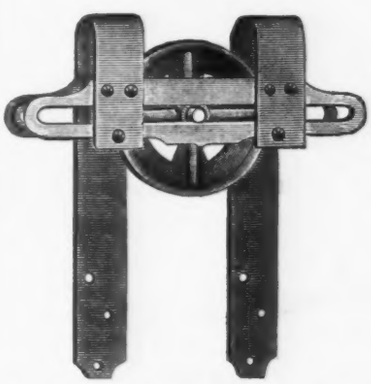
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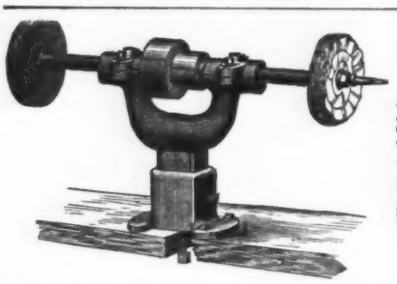


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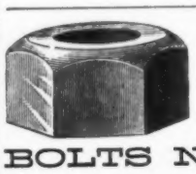
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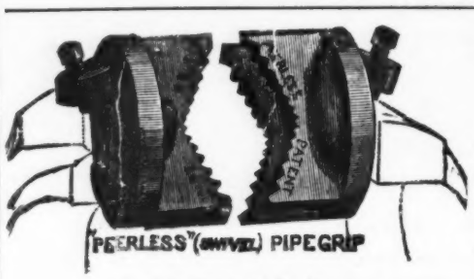
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Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y,

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of,*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery Wheels.
Diamond Mach. Co., Providence, R. I.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Harrisburg Car Mfg. Co., Harrisburg, Pa.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

(See Alphabetical Index, Page 96.)

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Odilliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
Russia Cement Co., Gloucester, Mass.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Mach. Co., Providence, R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder. *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.
Tommins & Adams, 116 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Phila., Pa.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh.
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Anthony & McElroy, Philadelphia, Pa.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan, Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N. Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Iron, Steel and Nails.
Morris, Wheeler & Co., 28 Reade, N. Y.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Perry, J. E., Wakefield, R. I.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U., Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.
Wood, Thos. & Co., Philadelphia, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Palmer, Cunningham & Co., Phila.
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Pittsburgh, Kan.

Marking Tools.
Montgomery & Co., 105 Fulton, N. Y.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Mop Sticks.
Peabody & Parks, Troy, N. Y.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fralm, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Haik & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Morris, Tasker & Co., 224 South Third, Phila.
Spiral Weld Tube Co., 5 & 7 Beekman, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power. *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
Keystone Engine and Machine Works Phila., Pa.
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 90 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

(See Alphabetical Index, Page 98.)

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Refrigerators.
Grand Rapids Refrigerator Co., Grend Rapids, Mich.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hardware Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia. Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shot.
Globe Shot Works, Philadelphia, Pa.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Winslow, Sam'l, Skate Mfg. Co, Worcester, Mass

Smelting Works.
Reeves, Paul S., 780 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Manning & Squier, 111 Liberty, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y.

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 108 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogarud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Standard Steel Works, Philadelphia.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa.
Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co!, Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohia.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty,
Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Wks, Indianapolis Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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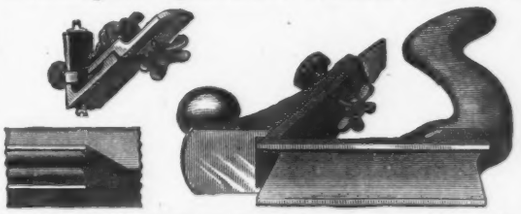
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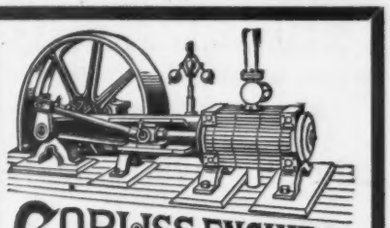
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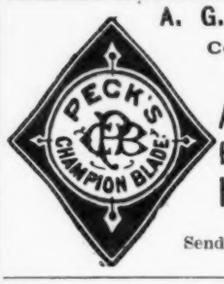
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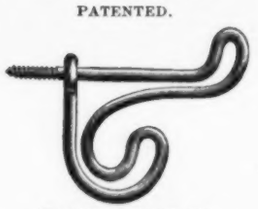
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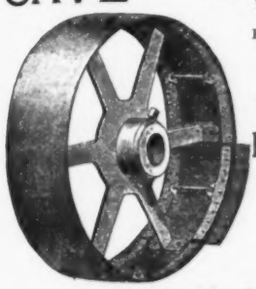
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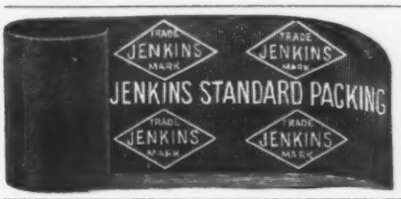




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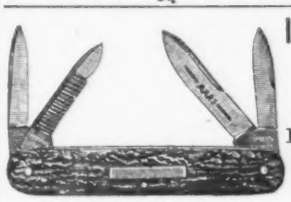
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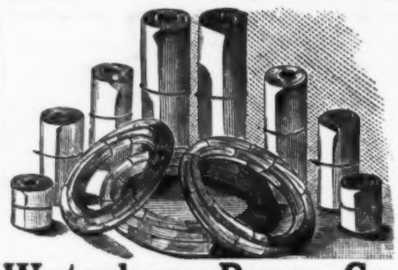
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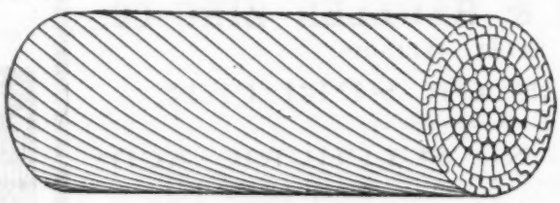
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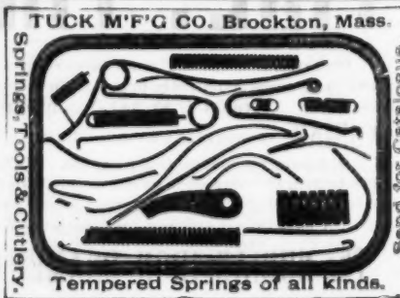


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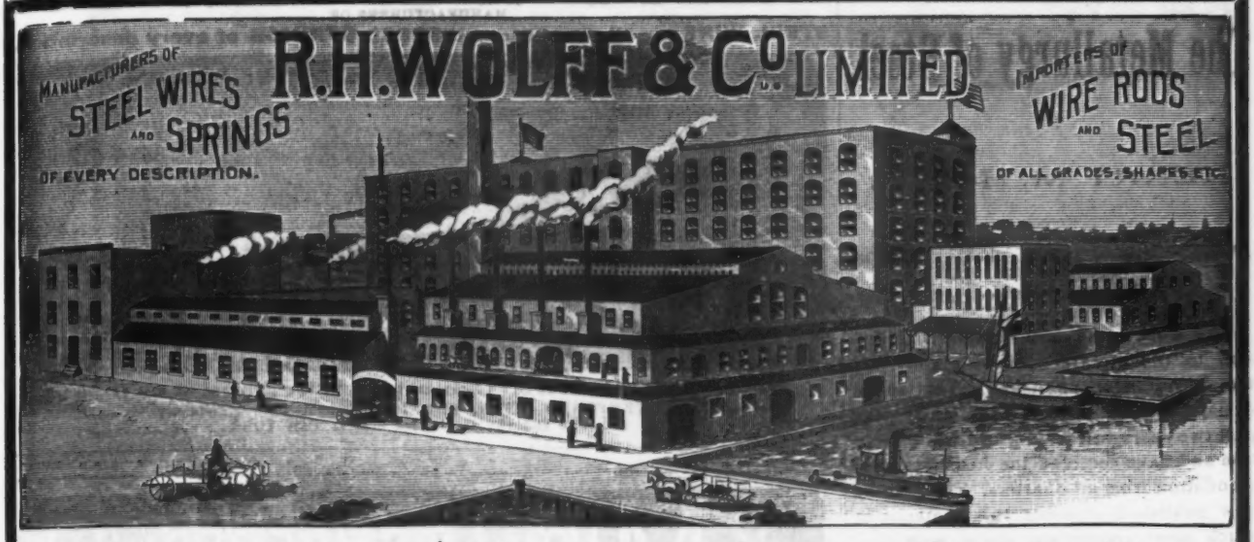
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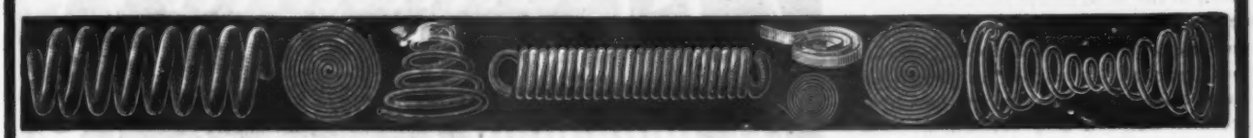
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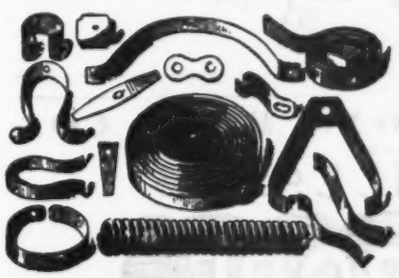
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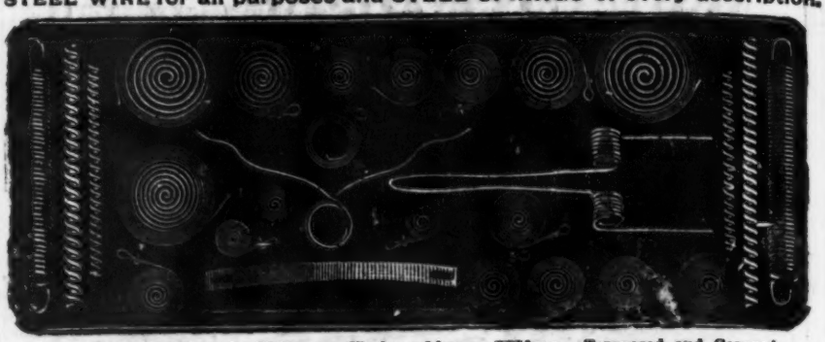
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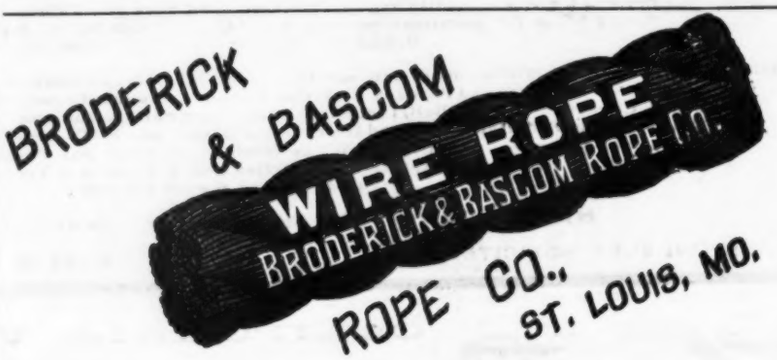
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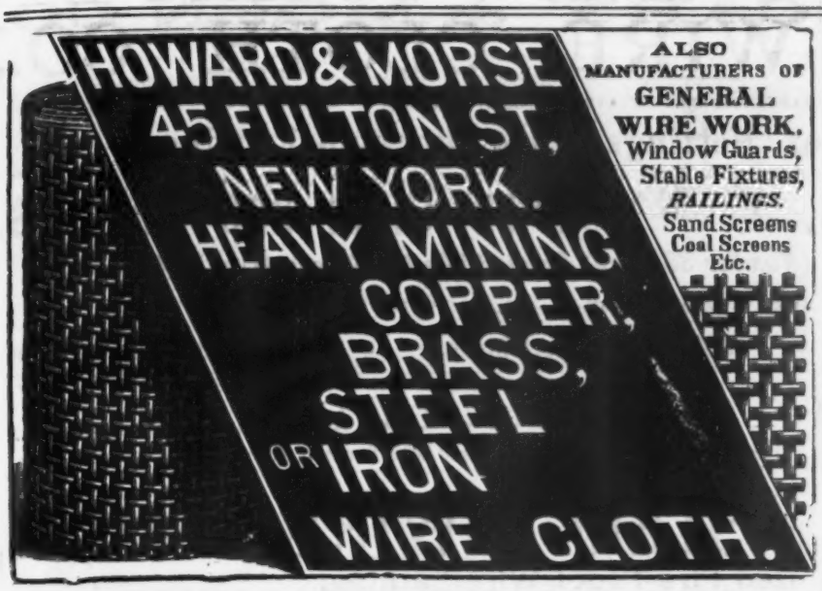
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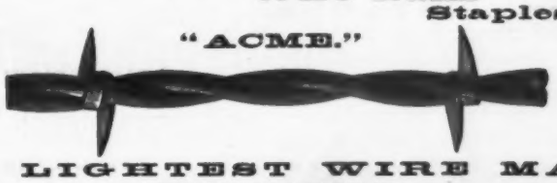
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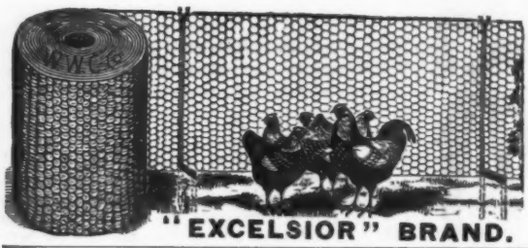
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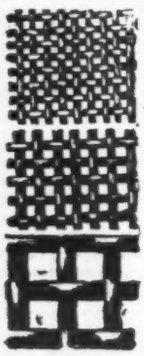
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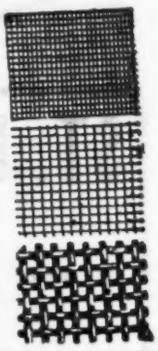
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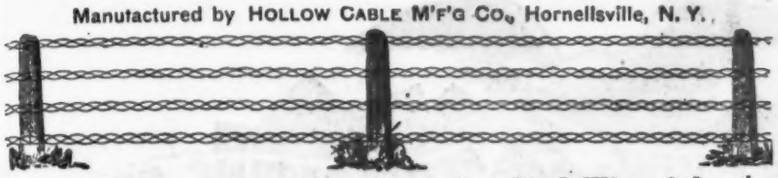
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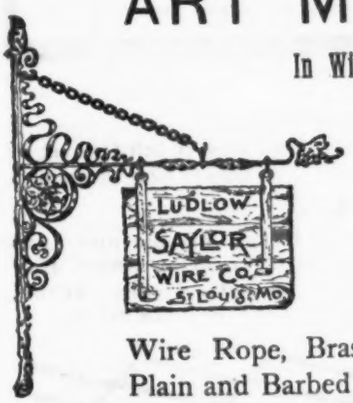


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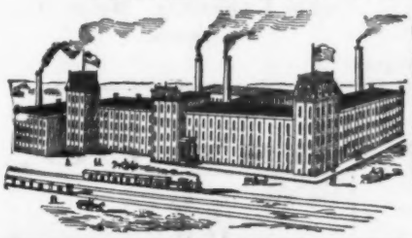
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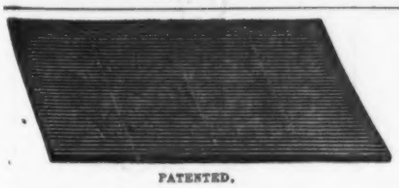
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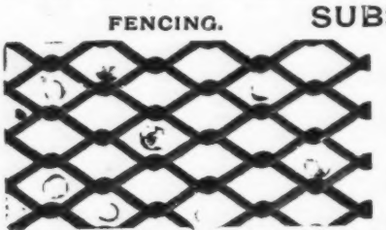
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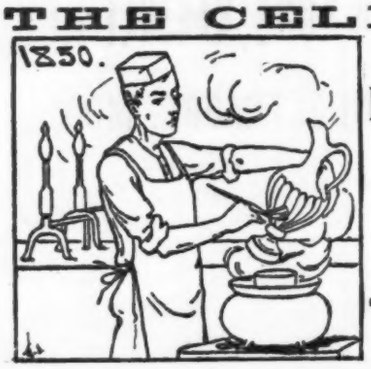
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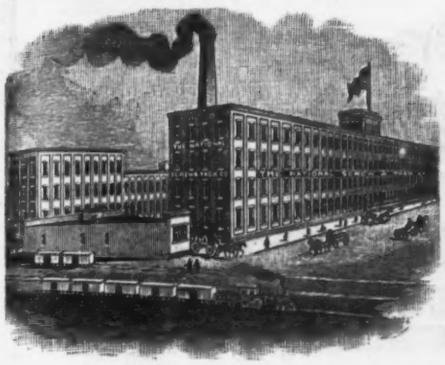
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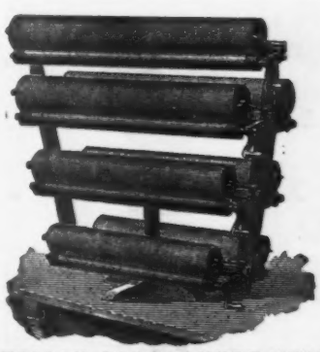
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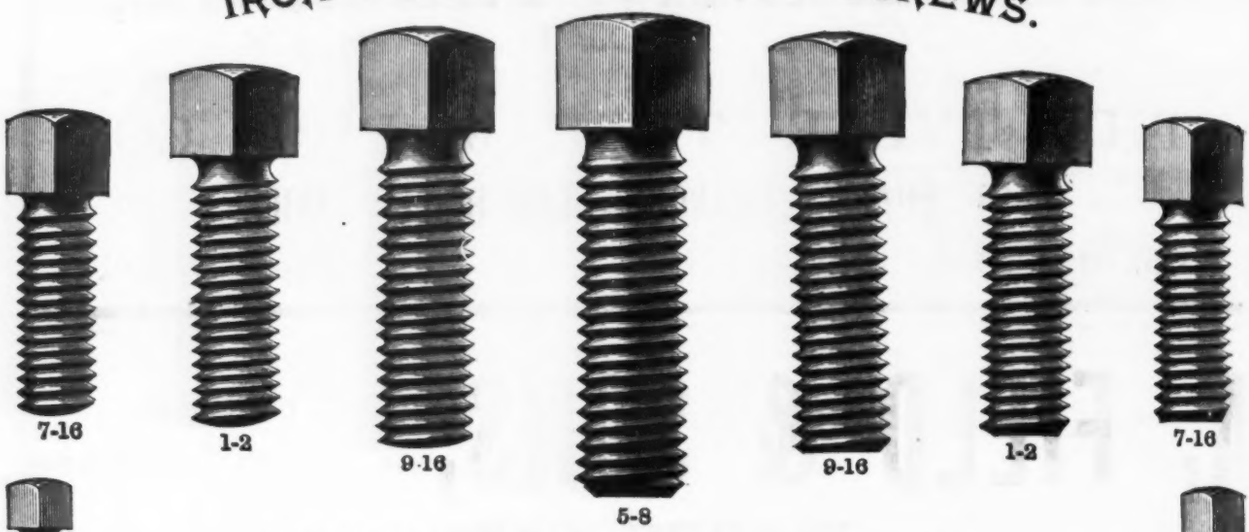
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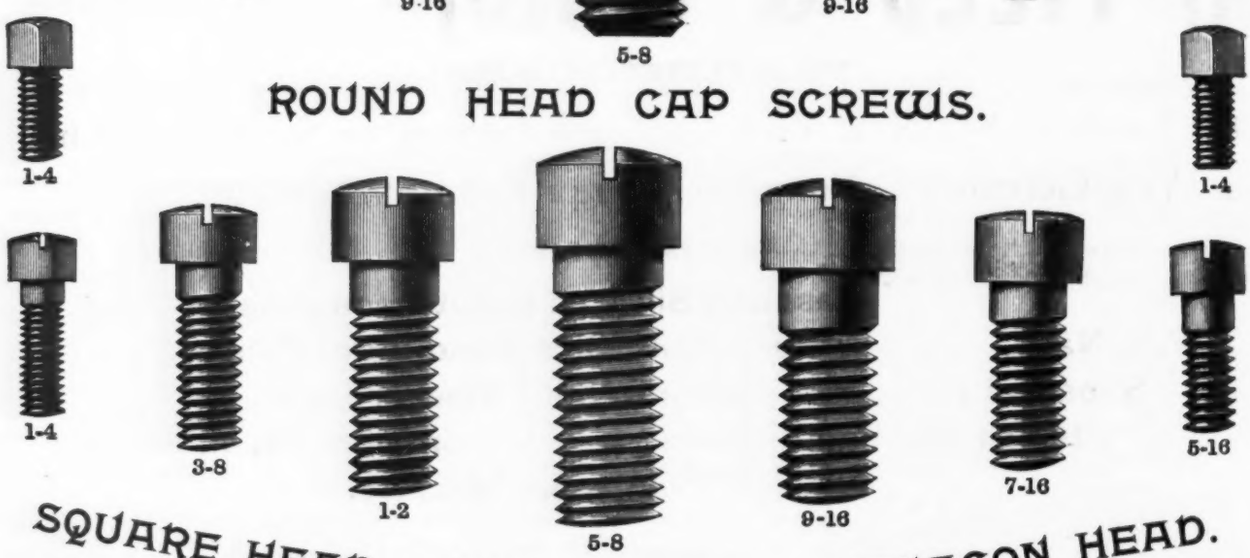
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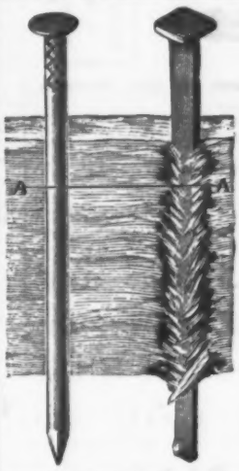
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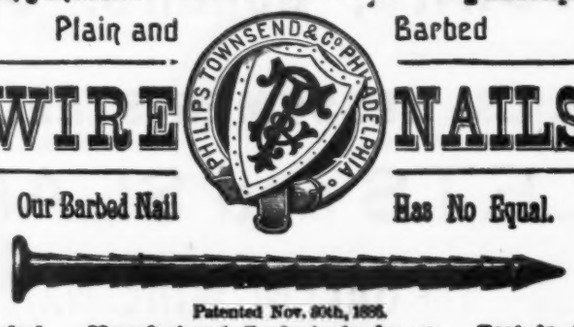
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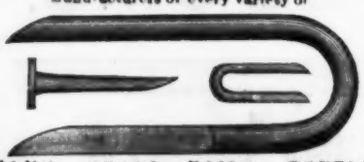
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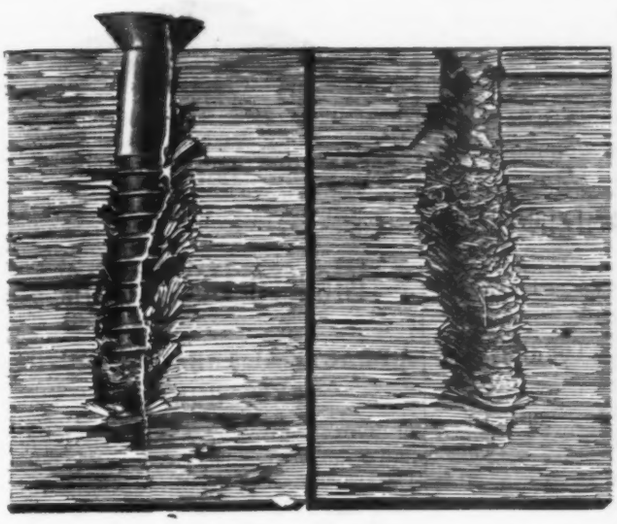
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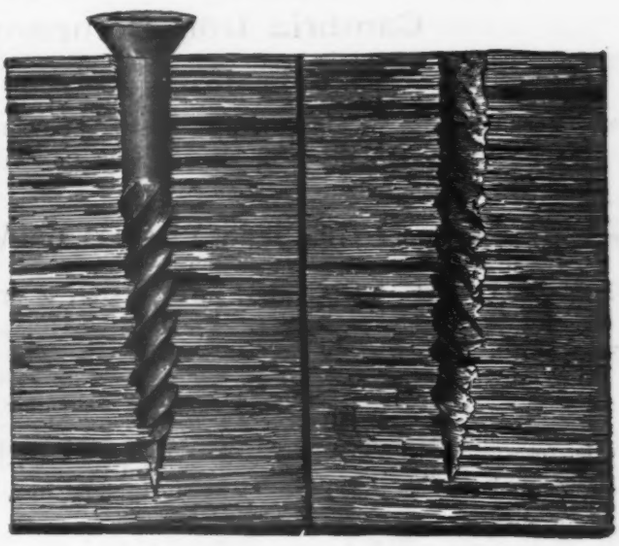
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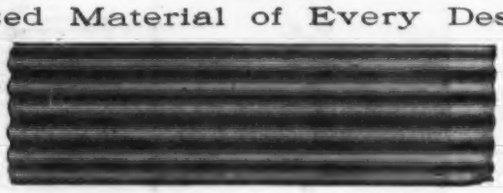
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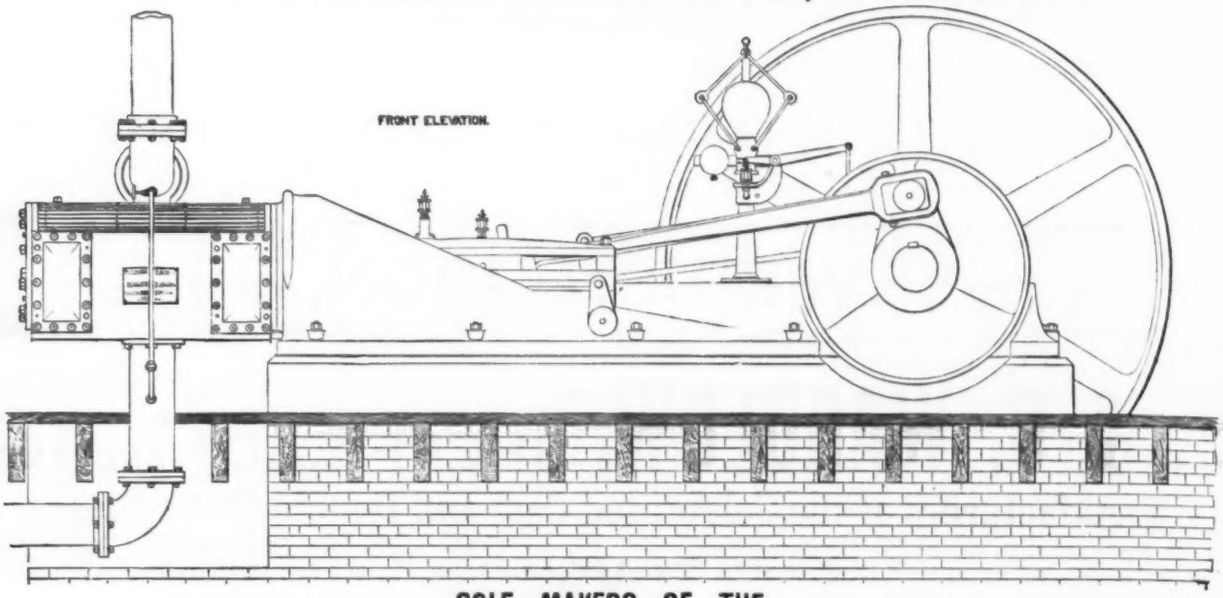
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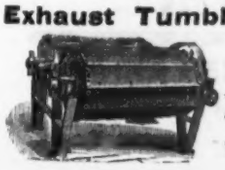
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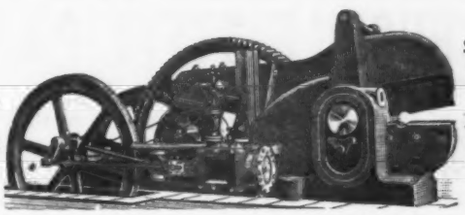
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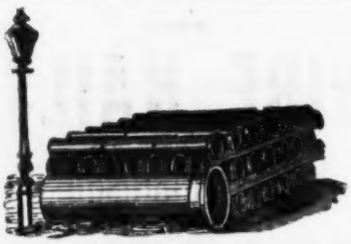
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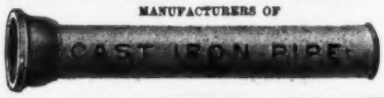
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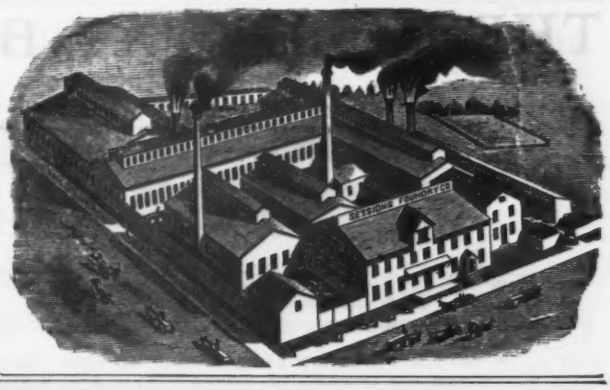
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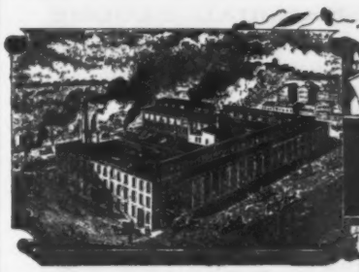
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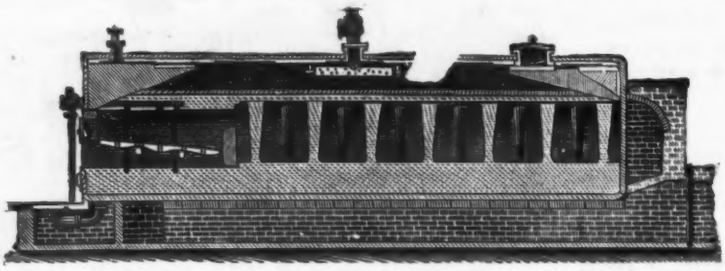
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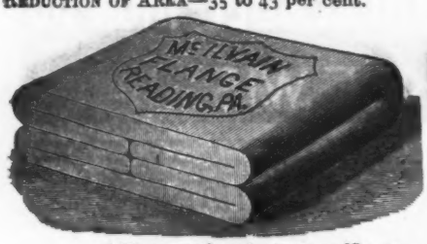
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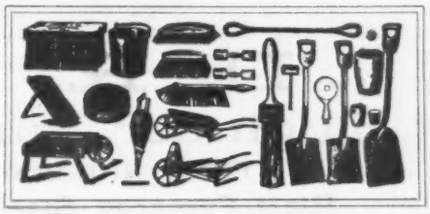
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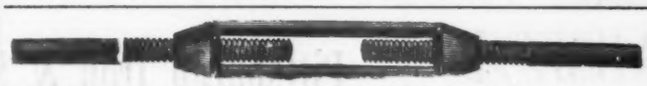
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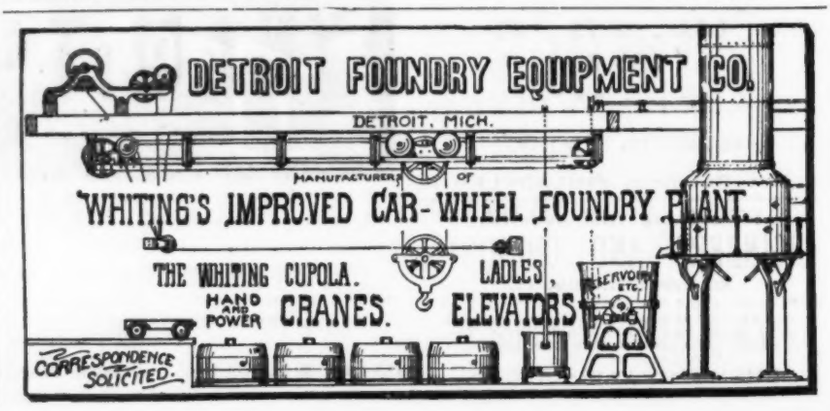
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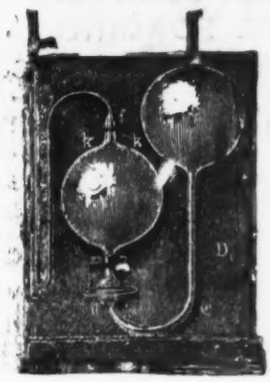
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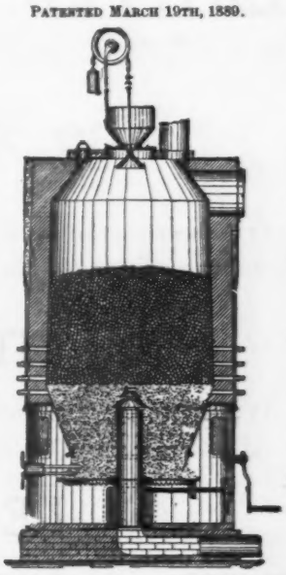
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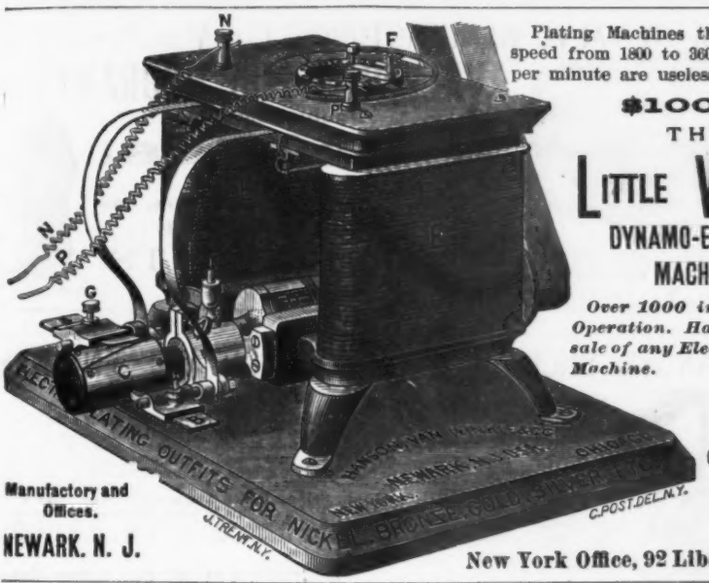
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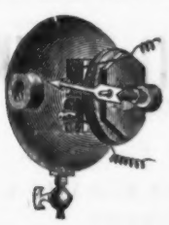
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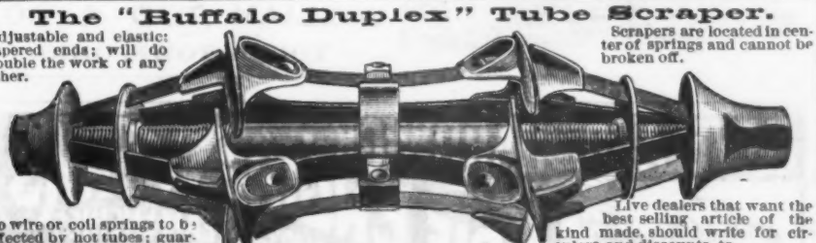
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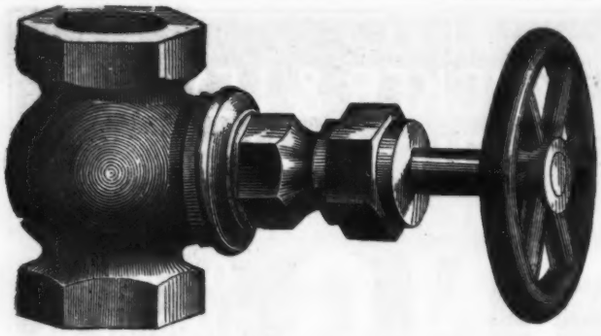
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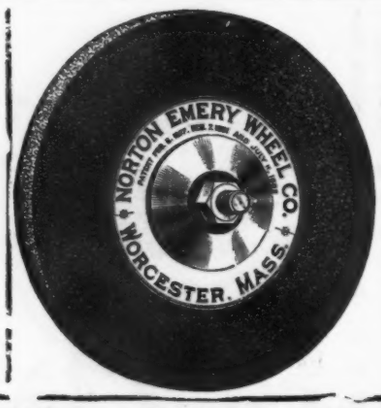
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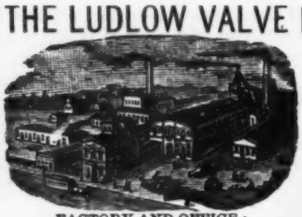
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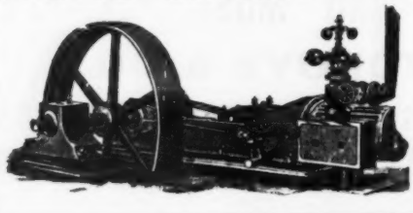
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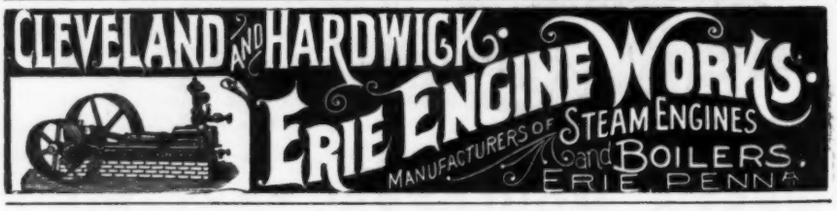
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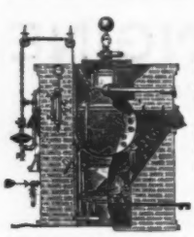
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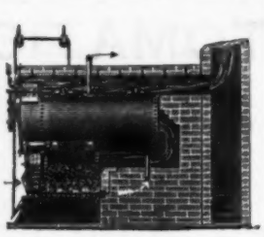
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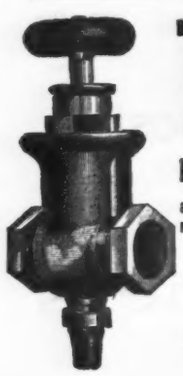
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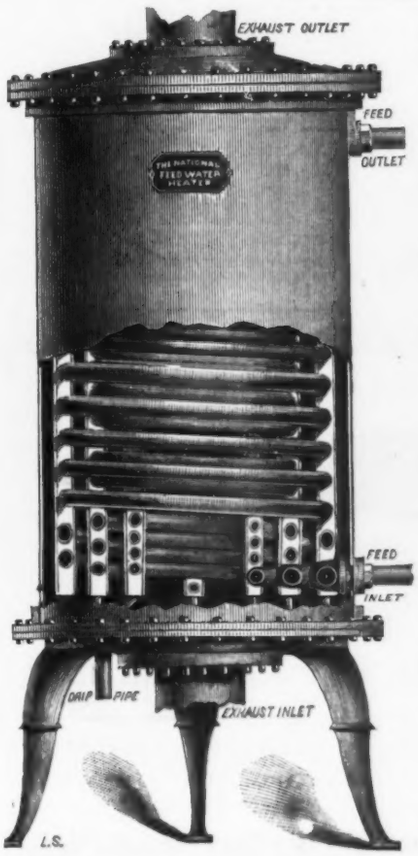
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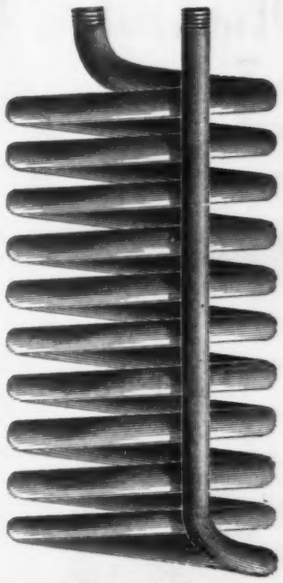
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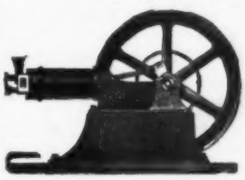


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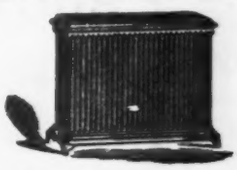
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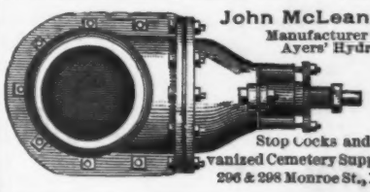
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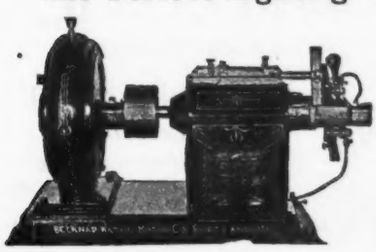
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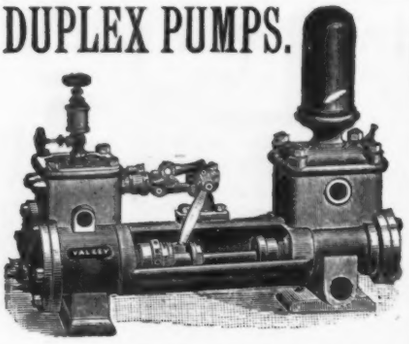
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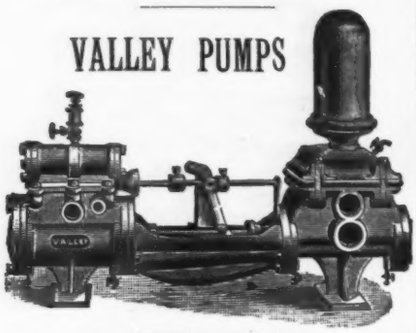
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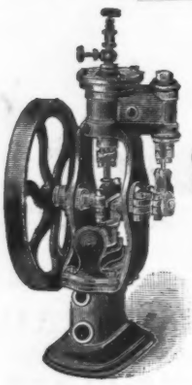
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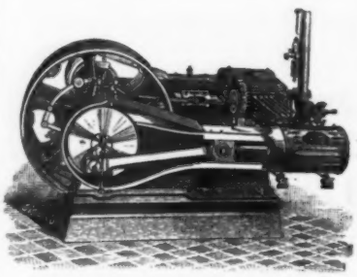


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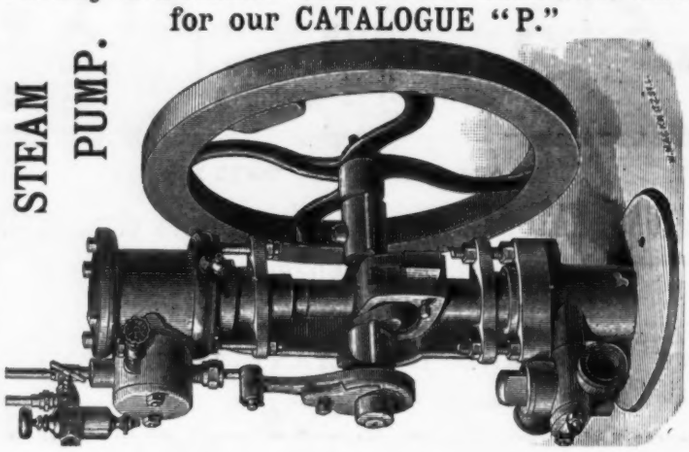
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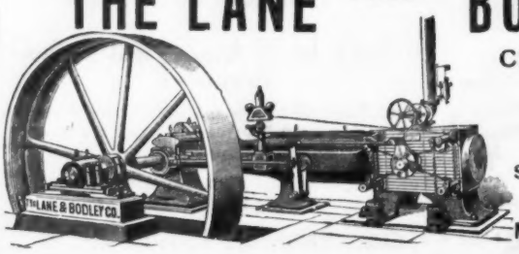


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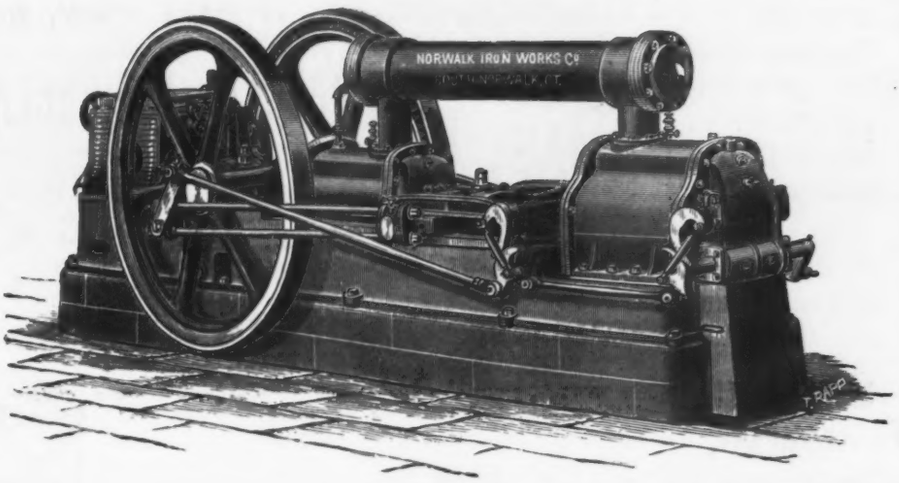
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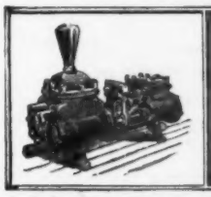
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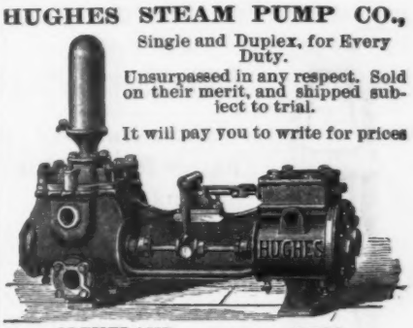
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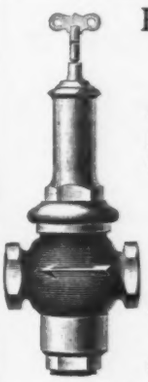
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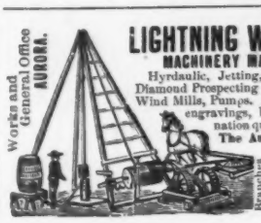
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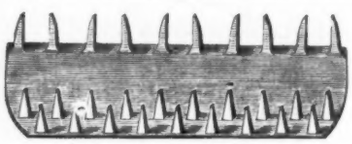
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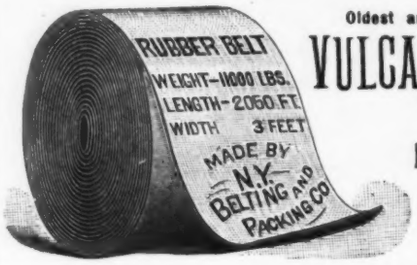


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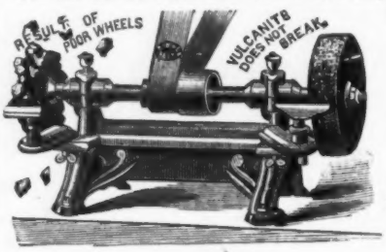
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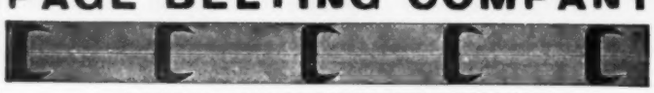
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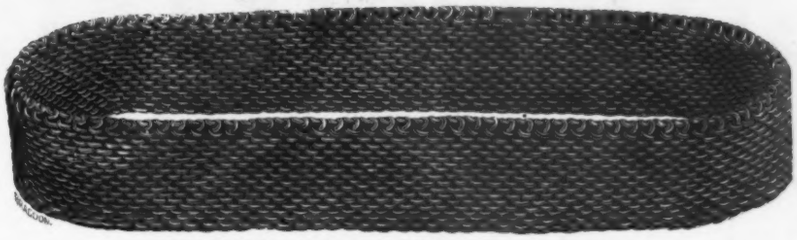
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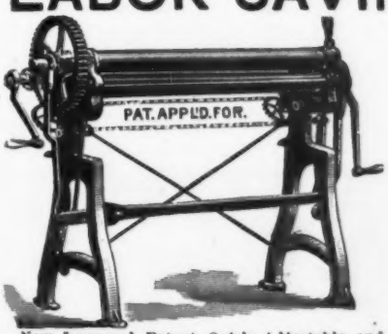
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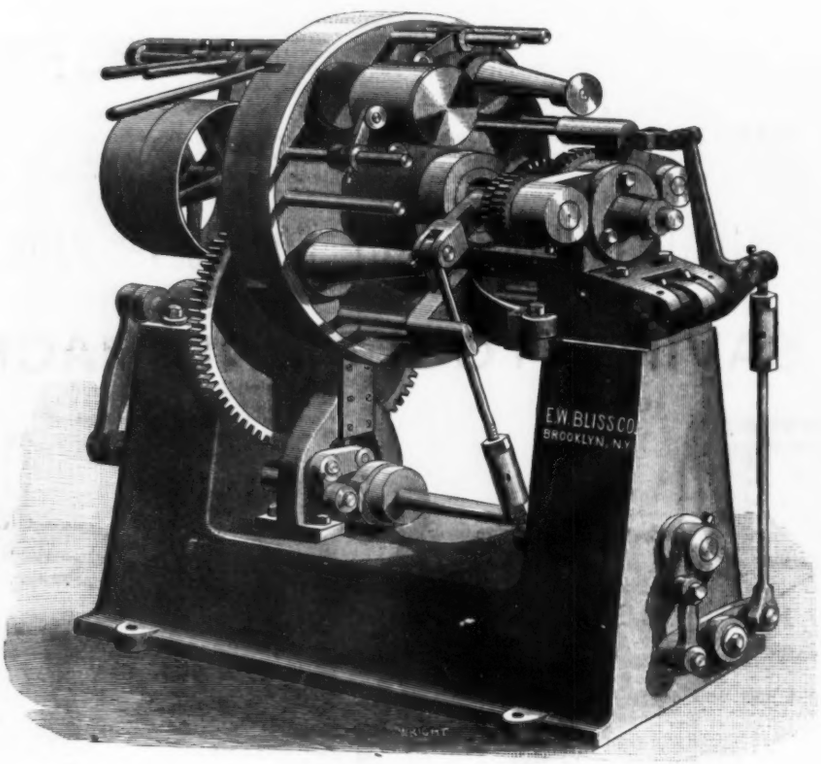
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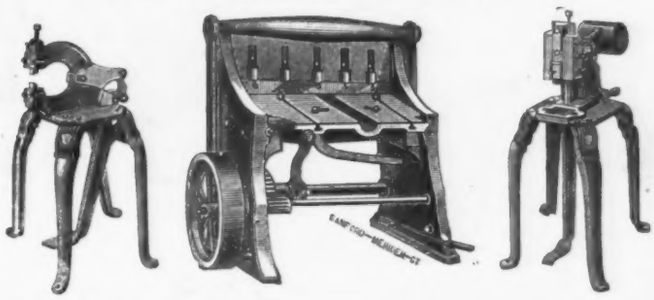
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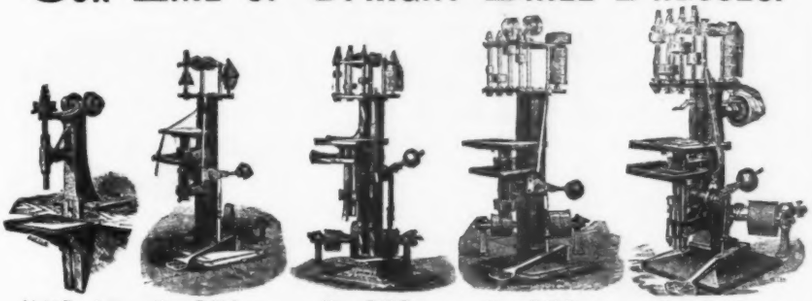


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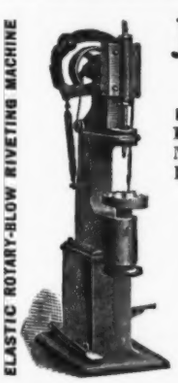
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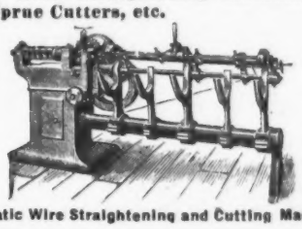


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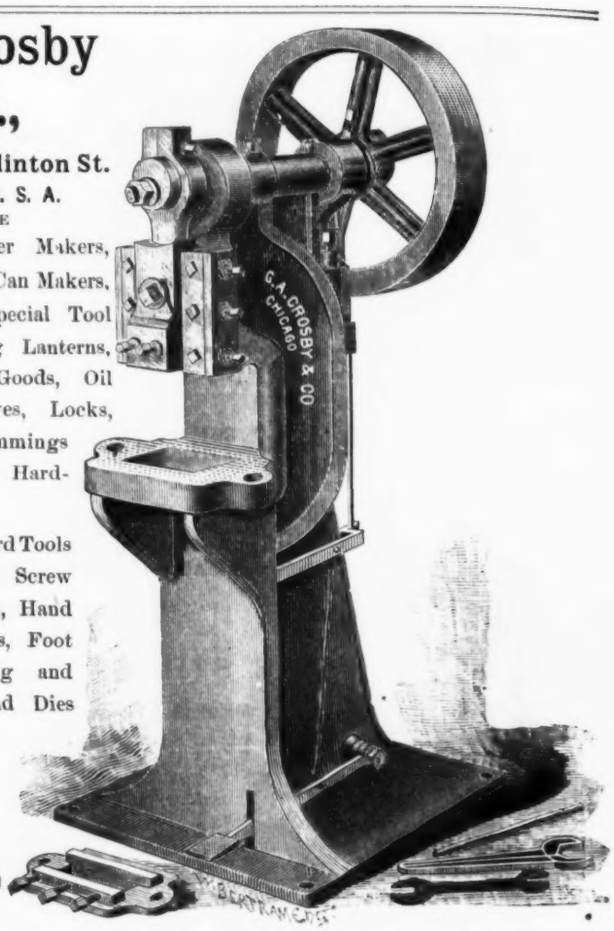
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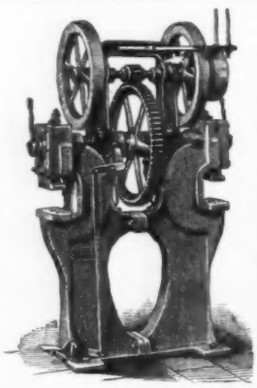
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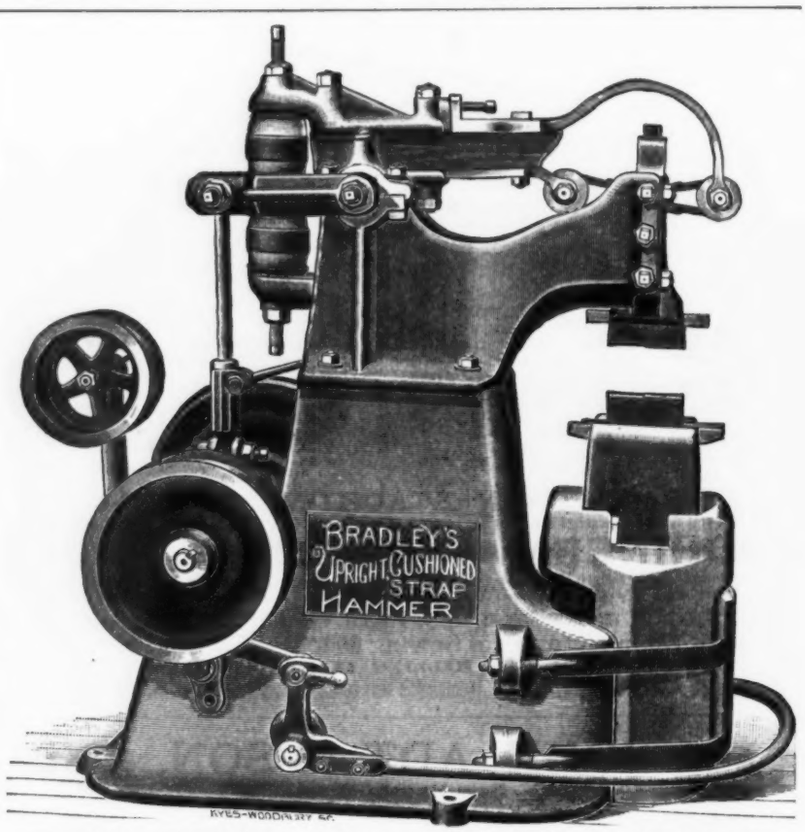
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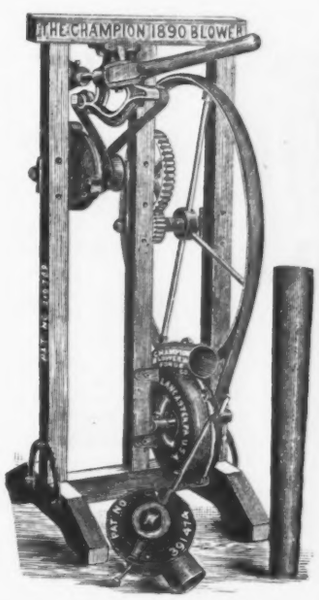
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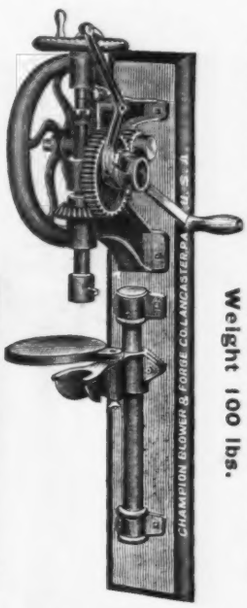
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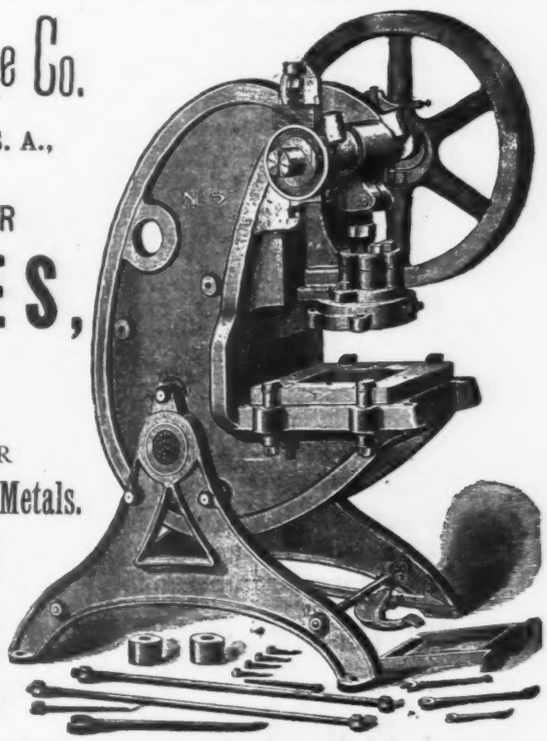
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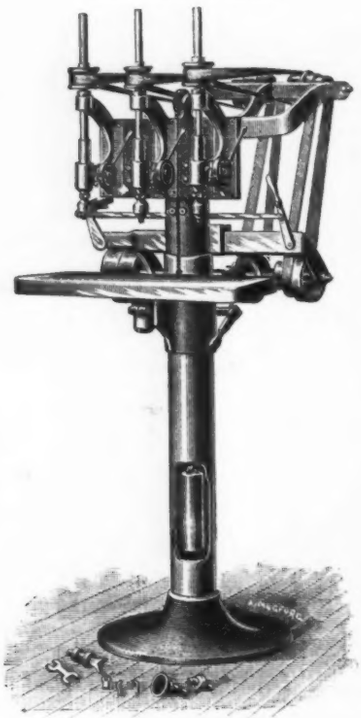
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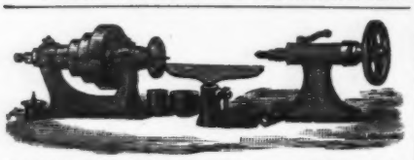
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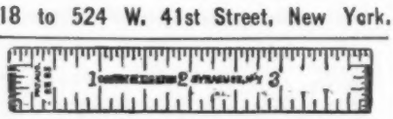
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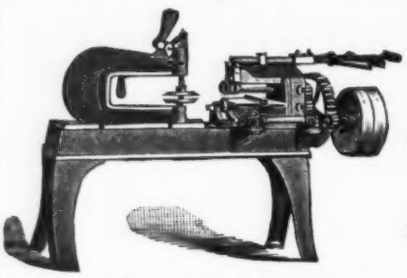
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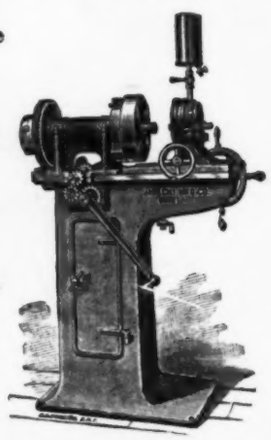
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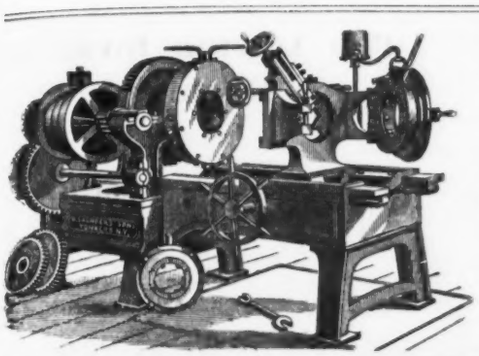
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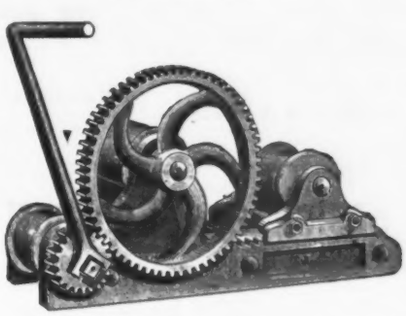
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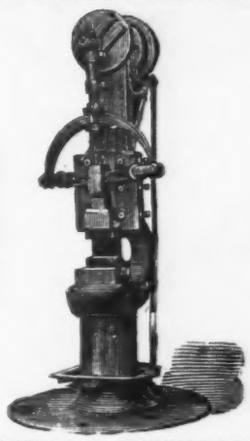
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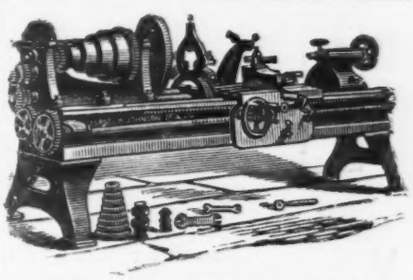


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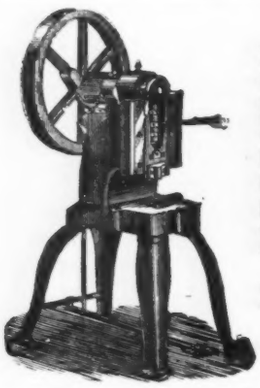
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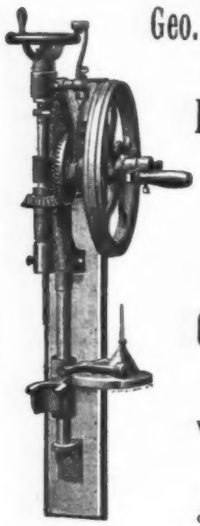
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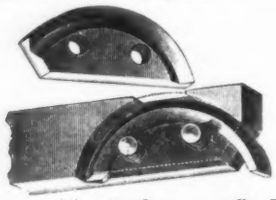
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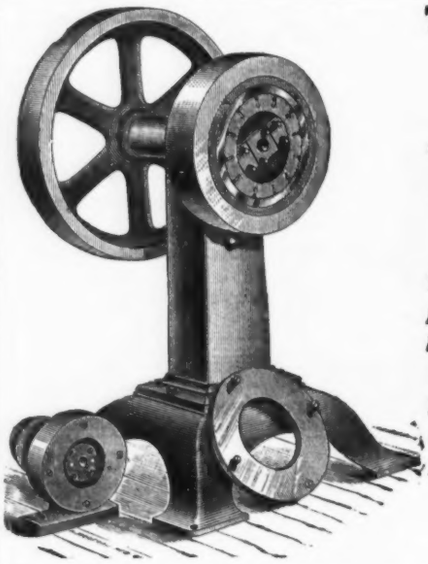
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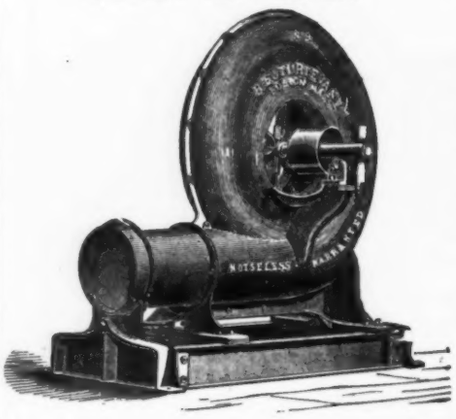


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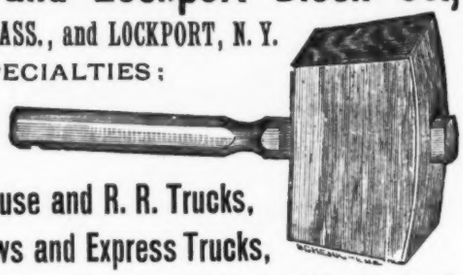
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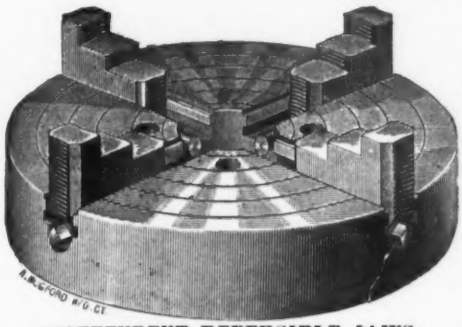


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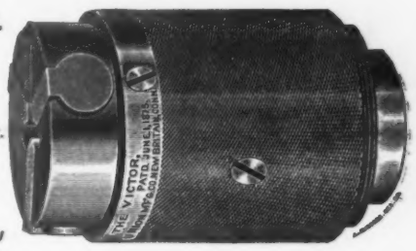
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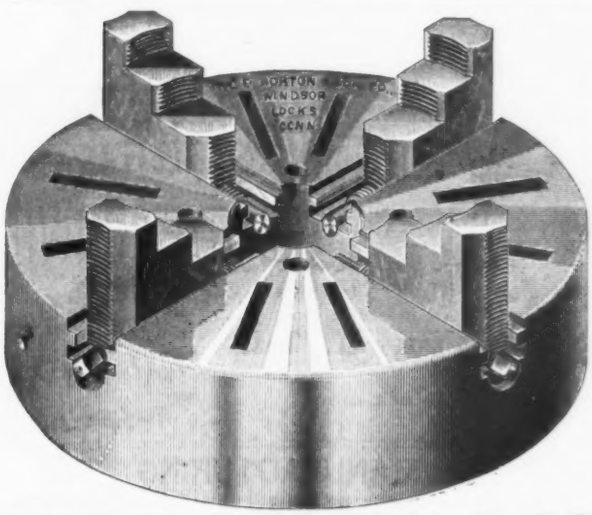
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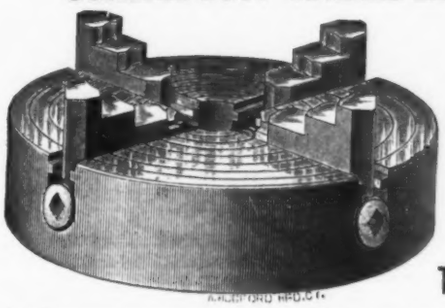
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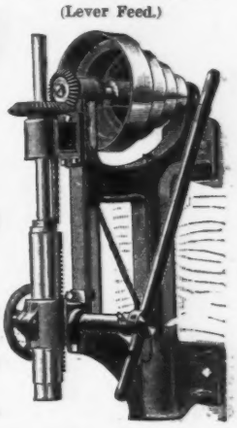
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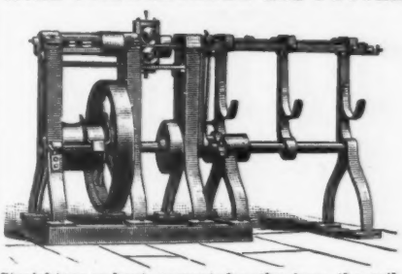


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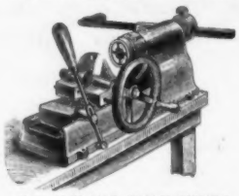
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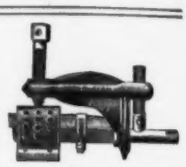


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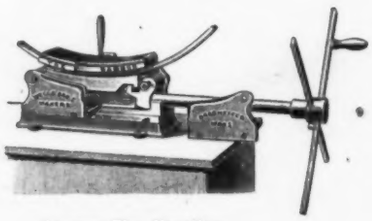


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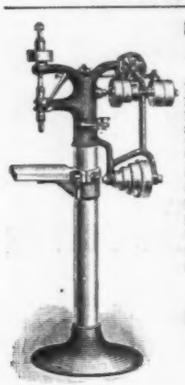
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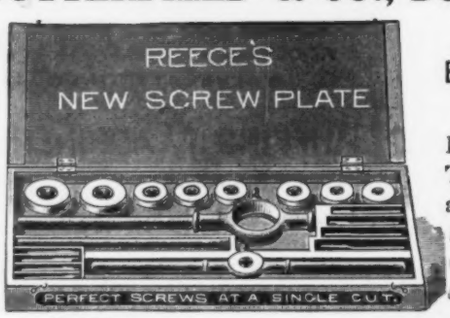
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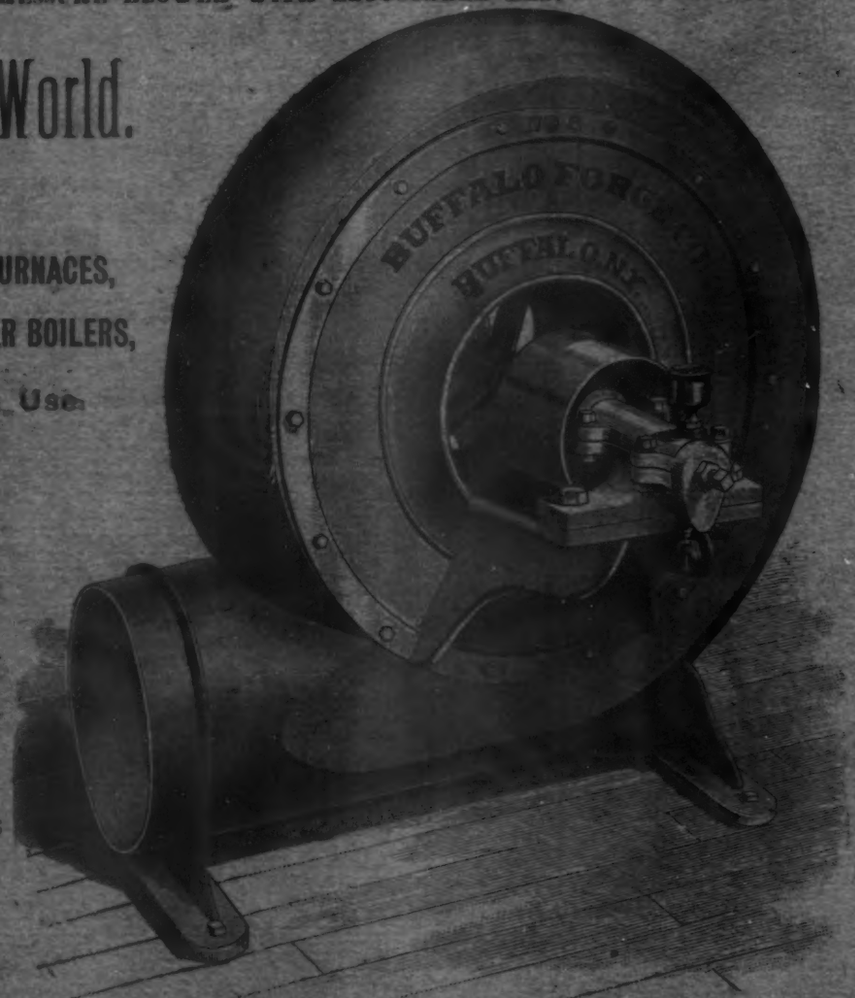
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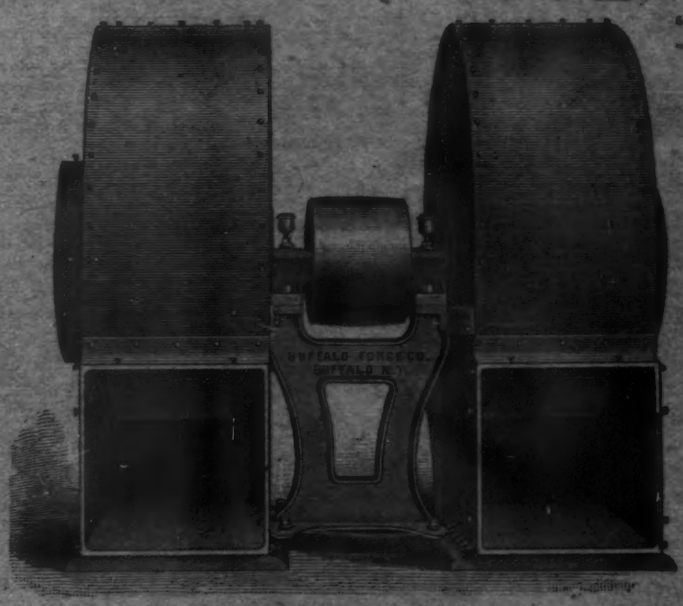
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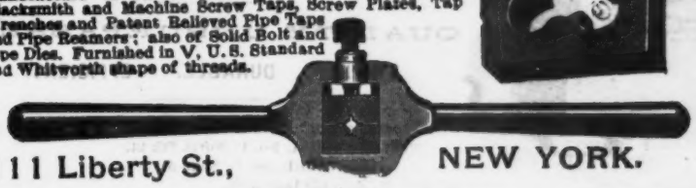
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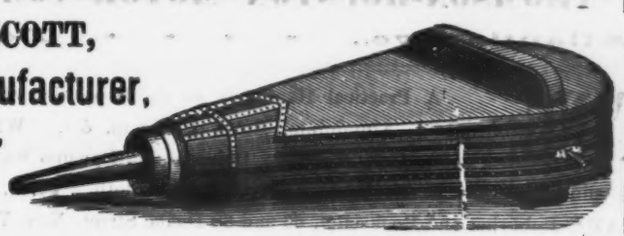
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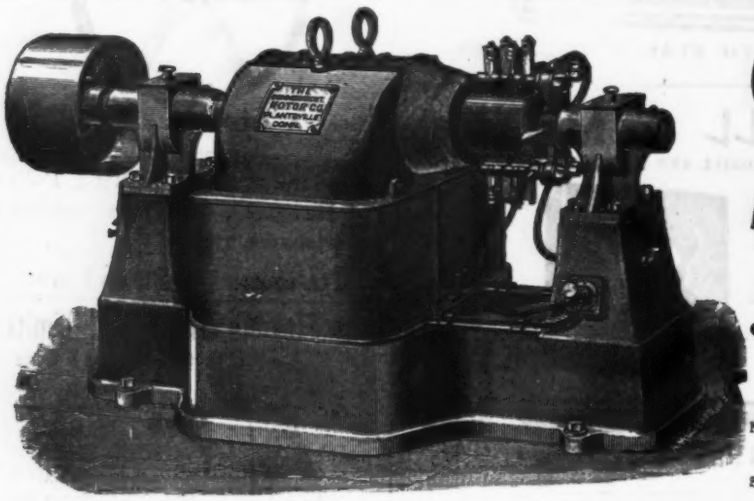
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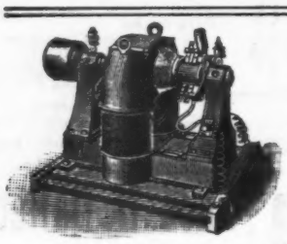
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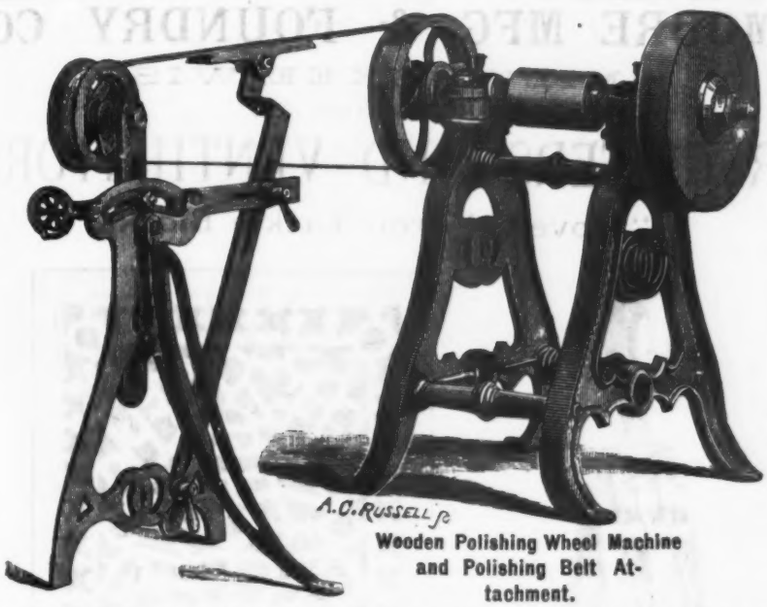
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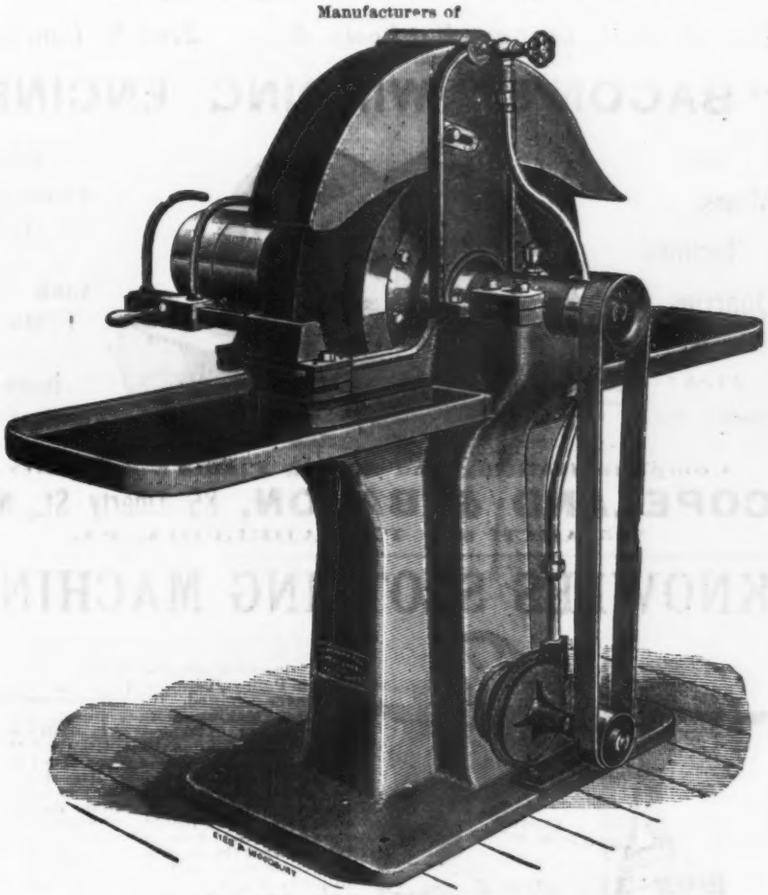
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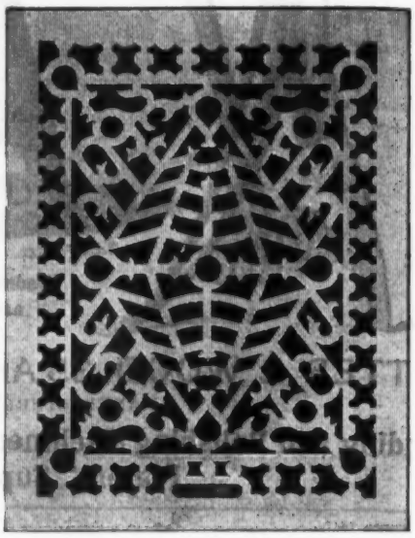
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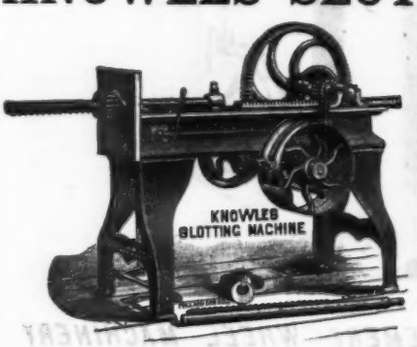
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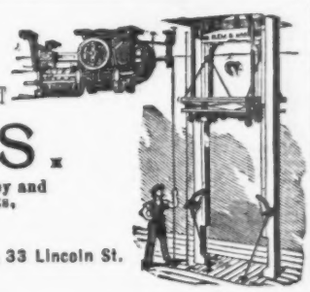
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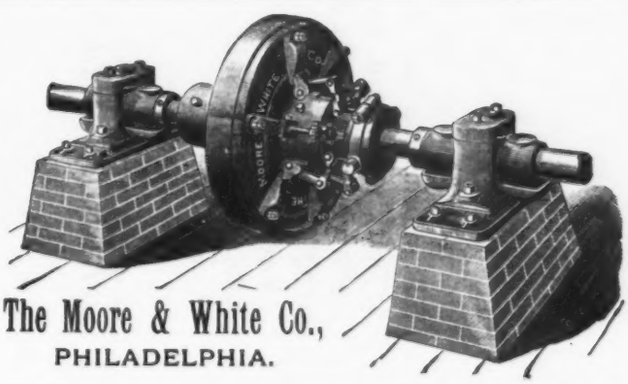


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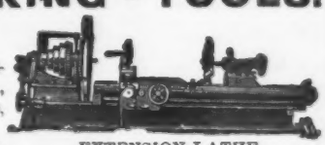
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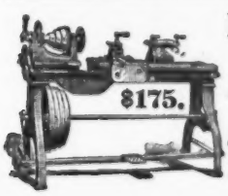
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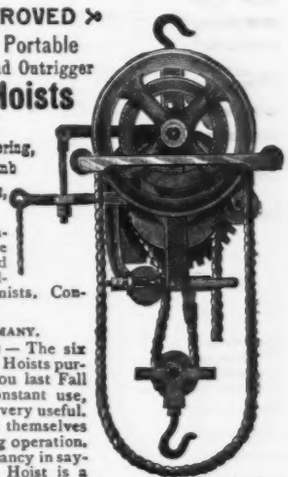
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Quick Lifting, Quick Lowering, Elevator and Dumb Waiter Gearings, etc.

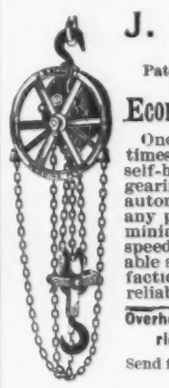
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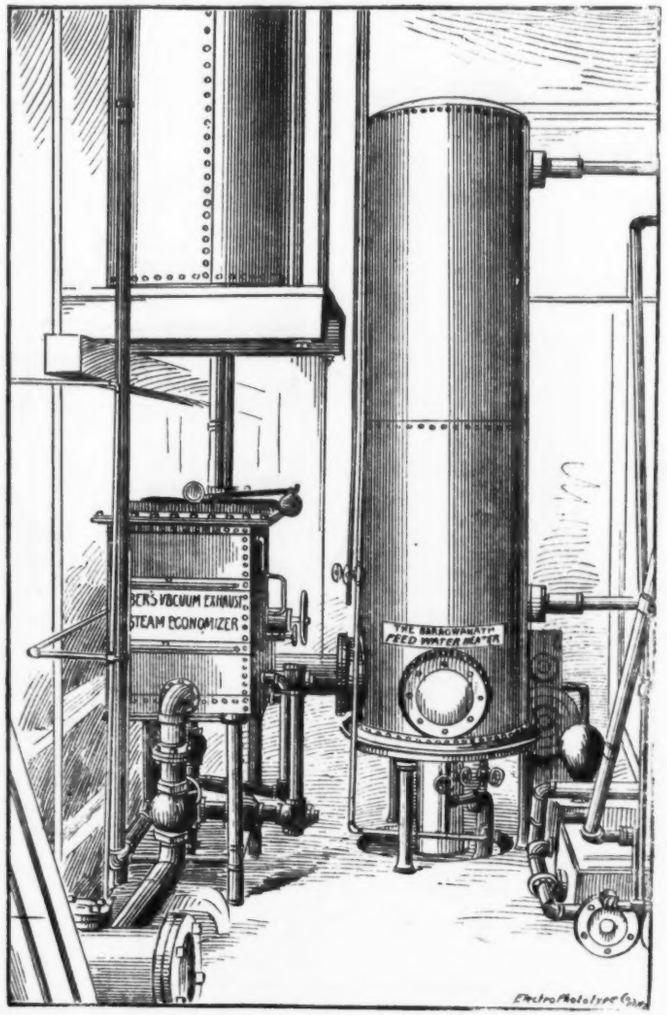
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Webster's "Vacuum" Exhaust Steam Economizer, in operation at the American Tube & Iron Co., Youngstown, Ohio. Accepted after a competitive test with a Baragwanath Heater. (See letter.)

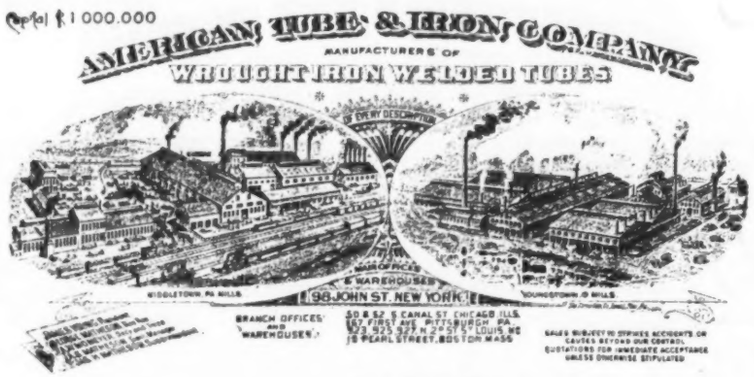
Is the **most perfect device known** for **heating** and **purifying** the **feed water** for steam boilers, with the **special feature** that it is a **receptacle for the condensation of the heating apparatus, which is returned to the boiler,** dispensing with a receiving tank (winter and summer use). We have just issued a 72-page illustrated catalogue of **convincing proofs** of the **merits** and **superiority** of **Webster's "Vacuum" Exhaust Steam Economizer over pressure feed water heaters and purifiers,** by **phototypes** of **original connections** as applied to plants named herein, and **phototype letters of endorsement from users** and the **highest mechanical engineering talent** (as shown), which we will send to those applying for it.

Before you decide upon the adoption of any feed water heater and purifier, or any device for assisting the circulation of steam for heating purposes (after receiving full information of every device in the market), **we would be pleased to call upon you personally and explain with proofs the superiority of Webster's "Vacuum" Exhaust Steam Economizer** over Pressure Coil, Tubular or Open Heaters.

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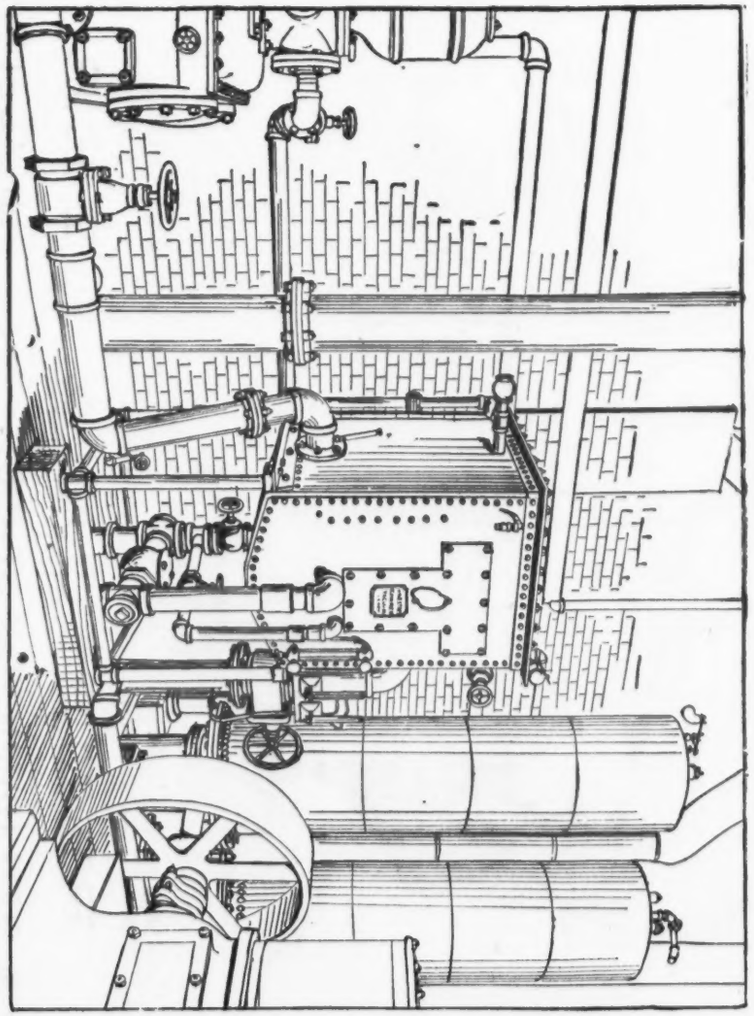
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Yours truly,



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(SEE LETTER OPPOSITE.)

IN WINTER it assists the circulation of either live or exhaust steam throughout the heating coils, returning the condensation to the boiler.

IN SUMMER, by consuming the necessary exhaust steam for heating and purifying the feed water direct from the open exhaust pipe—independent connection from winter use.

NO PART IS UNDER PRESSURE; there is no wear, merely the circulation of entering water and steam.

CONVENIENCE OF APPLICATION; it can be placed in any position, either near by or at any distance from the main exhaust pipe.

WHERE CONDENSING ENGINES ARE USED the water from the hot well can be utilized in connection with the exhaust steam from the pumps and small engines for raising the temperature and purifying the feed water for the boilers.

SAVES ROOM, as it occupies but little space.

SAVES POWER, as the back pressure is relieved by drawing sufficient exhaust steam to vaporize the amount of water allowed to enter into the "Vacuum" Exhaust Economizer.

SAVES WATER, by liquefying the exhaust steam, which is drawn into the "Vacuum" Exhaust Steam Economizer.

SAVES COAL, by feeding the boiler with purified water, at a temperature at or just below the point of vaporization.

HOW THE WATER IS PURIFIED: By the latent heat of the exhaust steam converting the water which enters into the "Vacuum" Exhaust Steam Economizer into a vapor of low tension, the effect of which is the disintegration of the vaporized water and the liberation of the impurities, grease and scum.

Among the Large Number who have adopted the Webster "Vacuum" Exhaust Steam Economizer we would mention:

The Phœnix Iron Works, Phœnixville, Pa. 4 orders.
The Pencoyd Iron Works, Pencoyd, Pa. 4 orders.
The Paxson Furnaces, Harrisburg, Pa.
The Standard Steel Works, Lewistown, Pa.
The Logan Iron & Steel Co., Lewistown, Pa. 2 orders.
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J. Wood, Bros. & Co., Conshohocken, Pa. 2 orders.
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St. Louis Stamping Co., St. Louis, Mo.
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THE CLEVELAND ELECTRIC LIGHT CO.

17 PUBLIC SQUARE.

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Telephone 811.

Cleveland, O. June 30th 1892

Warren Webster & Co.
491 N-3rd St
Philadelphia

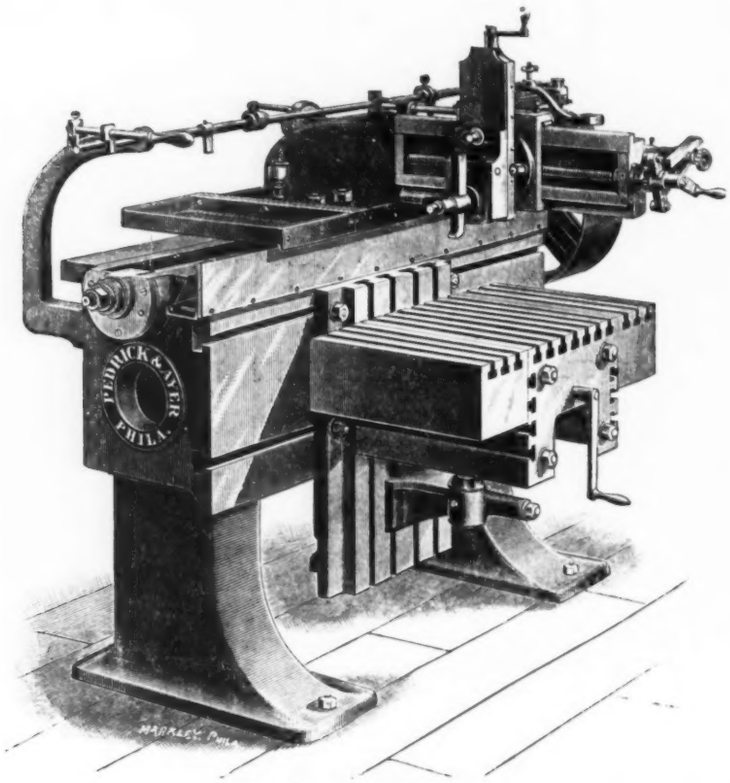
Gentlemen:

We have made a practical test of your 1000 Horse Power "Vacuum" Exhaust Steam Economizer and found that it gave us a temperature of 210 degrees in feed water for our boilers during our heaviest run, which is about twenty (20) per cent higher than that obtained from two (2) Berryman feed water heaters upon the same amount of exhaust steam. We have found that the saving in coal and improved quality of feed water to be fully up to your guarantee and therefore accept it.

The Cleveland Electric Light Co. H. Hatch Mgr.

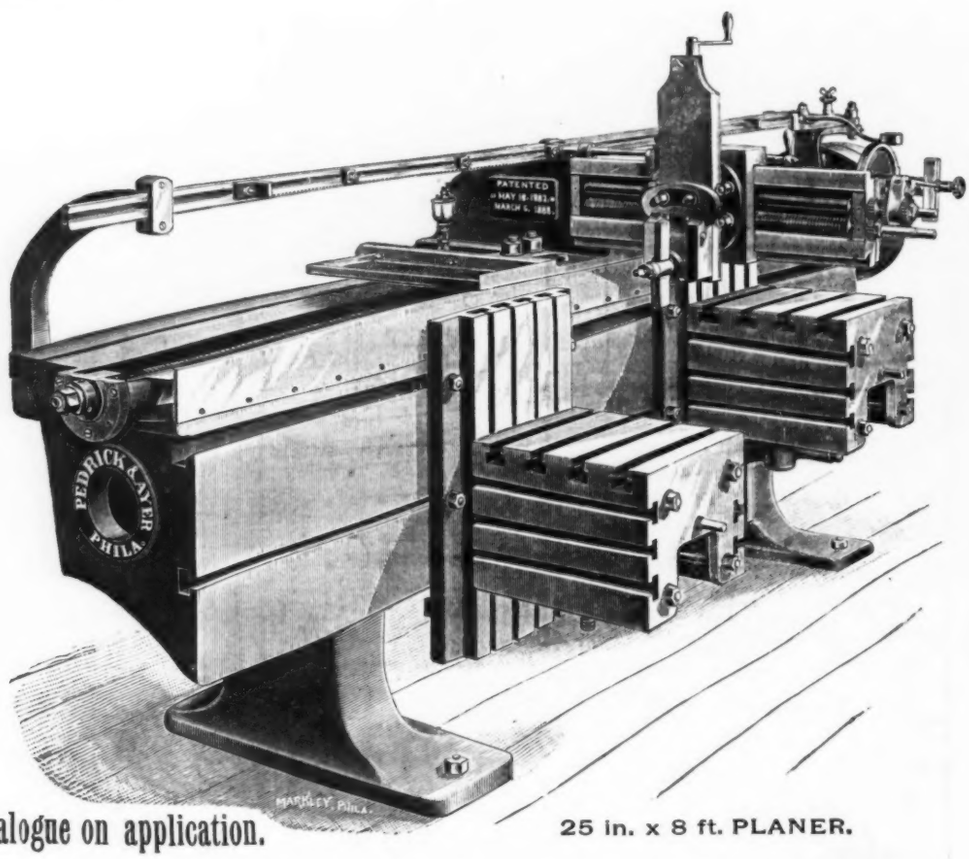
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20 x 30 in. SHAPER.

These machines are no experiment, hundreds of them being in use. They are very valuable for both special and general work. They are warranted in every way in regard to efficiency, true working, rigidity and cutting power. They are made in different sizes to suit customers.



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Special.

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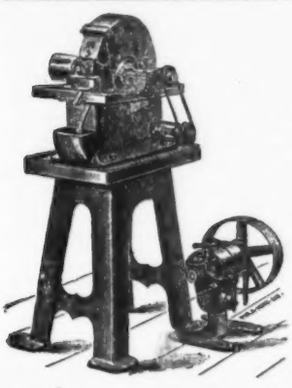
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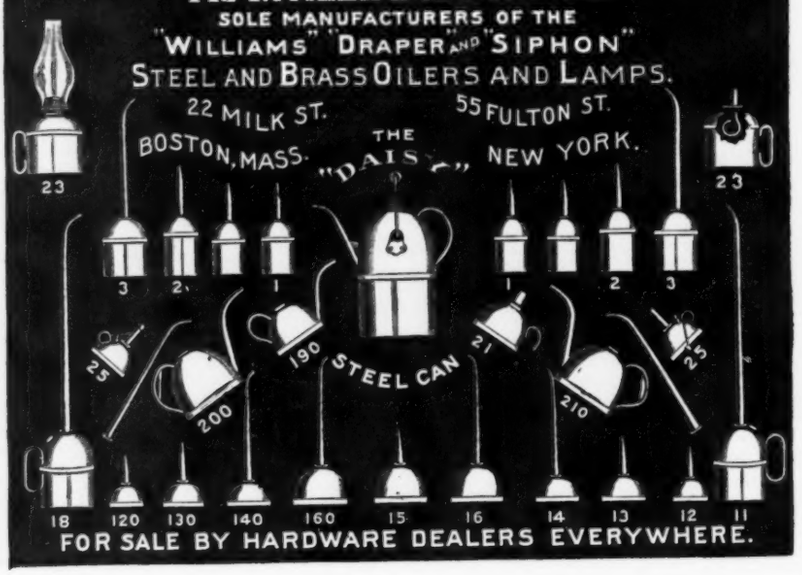
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We are sole makers of hardwood bent rim, oak spoke arm Pulleys; gripped to shaft with bolts, and using patent paper bushings. They can be put onto shaft without taking it down or cutting keyseats. No glue or nails used in their construction. Hub with bushing fits any size of shaft.

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3 26 in. " " Shapers " " "

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80 H.-P. Vertical Engine.
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New Boilers, 2 to 40 H.-P. in stock.

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2 Power Punches, ⅝-in. hole in ¾ in. iron, approx.

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Engine Lathes.—42 in. x 12 ft.; 32 in. x 12 ft.; 29 in. x 15 ft.; 24 in. x 28 in. x 20 ft.; 1 each 24 x 10 ft. 12 ft. and 16 ft.; 1 each 17 in. x 6 and 8 ft.; 1 each 16 in. x 6, 8 and 10 ft.; 1 each 14 in. x 6 and 8 ft.; 6 12 in. x 5 ft.; 2 each 11 in. x 4 and 5 ft.; 2 each 10 in. x 4 ft. power or foot power; 1 16 in. x 6 ft., 15 in. x 6 ft., 14 in. x 5 ft. Fox Monitor Lathes; 1 15 in. x 6 ft. Square Arbor Fox Lathe; 1 each 15 in. x 6 ft. and 14 in. x 5 ft. Turret Lathe; 1 Engine Lathe, 14 in. x 6 ft. Toper.
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1 " 30 in. x 30 in. x 6 ft. 30 in. x 30 in. x 9 ft.
1 " 32 in. x 32 in. x 10 ft. 42 in. x 36 in. x 12 ft.
" 36 in. x 28 in. x 10 ft.
1 " 60 in. x 66 in. x 24 ft. with 1 head.
1 " 30 in. x 30 in. x 9 ft. with 1 head.
1 " 32 in. x 32 in. x 10 ft. with 2 heads.
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1 " 100 in. x 100 in. x 18 ft. with 2 heads.
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Shapers, Drills, Chucks, &c.; large variety.
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One 26 x 48 in. Horizontal Engine.
One pair 26 x 28 in. Blooming Mill Engines, complete.
Morgan Hydraulic Ladle Crane with Accumulator.
Two 12 to 15 ton steel ladles.
Two pair of Gordon Duplex Hydraulic Steam Pumps.
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1 30 in. x 30 in. x 6 ft. Planer. Good order.
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Send for prices for New Planers.
For immediate delivery:
1 30 in. x 30 in. x 8 ft. Planer.
36 in. x 36 in. x 12 ft. Planer. Two heads.
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Nine Small Vertical Engines, various sizes and makes.
One 24-in. "Ball" Planer. $100.
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One "Peck's" Drop Press, 450 lbs. ram.
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One Small Atmospheric Hammer.
One 6 H.-P. Portable Engine and Boiler, on wheels.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers
One 16 in. x 30 in. Horizontal Slide Valve Engine.
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One 8 in. x 12 in. Hoisting Engine and Boiler.
One 7 in. x 10 in. "Lidgerwood" Hoisting Engine, without boiler.
One 6 in. "Boynton" Shaper.
One "Kempsmith" Milling Machine. New.
One 7½ in. x 7 in. x 10 in. Worthington Duplex Pump.

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HENRY I. SNELL,
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MACHINISTS' TOOLS.

1 Iron Planer, planes 30 ft. long, 70 in. x 60 in. double head.
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1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 8 ft. 30 in. x 30 in.
1 20 ft. bed 72-in. Heavy Lathe
1 16 ft. bed 60-in. Engine Lathe.
1 11-ft. bed 18-in. Engine Lathe.
1 10 ft. bed 20-in. Engine Lathe.
2 8 ft. bed 18 in. Engine Lathes.
1 48 in. Vertical Boring Mill.
1 25 in. Blaisdell B. G. S. F. Drill.
1 20 in. Shaper. A1 order (crank).
1 40 lb. Bradley Cushioned Hammer.
1 14 in. Whitworth Traveling Head Shaper.
Send for List of Second-hand Tools.

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Delemater Engine, 14 in. x 28 in.
Wheelock " 14 in x 42 in.
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Knowles Pump, 30 in. steam, 18 in. water.
F. McSWEGAN, Dover st. and Franklin sq., N.Y.

One 100 H.-P. R. R. Locomotive Boiler, good for 100 lbs. steam.
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One 12 x 16 Watertown Automatic Engine, (used but short time).
One each 10 and 23 H.-P. Vertical Boiler.
One 1 H.-P. and one 2 H.-P. Acme Oil Burning Engines.
One each 6 & 8 H.-P. Portable Engine on wheels.
All in perfect order. New Boilers and Engines of all sizes.
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Assorted Brass Patterns for use in manufacturing light hardware; also four (4) Japan Ovens complete with shelves. Write for particulars.

NATIONAL BOLT, NUT & RIVET WORKS,
P. O. Box 243, Reading, Pa.

16 lb. RAILS.

For sale lot of 16 lb. and Light T Rails, fit to relay. Inquire MATTHEW GILL, JR., 308 Walnut Street, Philadelphia.

IRONMASTERS,

I can invest your surplus for you to great advantage in Real Estate or Manufacturing enterprises. The coming city of this wonderful section. Correspondence solicited. Referen ces, GEO. Y. WORTHINGTON.

BUCHANAN, VA.

WANTED.—Second-hand double hoisting engine, suitable for unloading canal boats; boiler not needed. Address, with full particulars,

BUFFALO STEAM FORGE,
5 Lewis Block, Buffalo, N. Y.

NOTICE

To Manufacturers of Stationary Engines, Steam Pumps, Boilers, Cranes, Cupolas, Ladles, Blowers, Machine Shop and Electric Light Equipments: Propositions will be received for furnishing either of the above mentioned. The Company will furnish specifications, blue prints and other information, reserving the right to reject any or all of the propositions made. Would be pleased to receive Catalogues, Circulars &c. Address

W. T. PARTRIDGE,

RADFORD PIPE & F'DY CO.,

6 United Bank Building, 3rd, and Walnut Streets, Cincinnati, Ohio.

FOR SALE, SECOND HAND.

We have several second-hand Berryman Feed Water Heaters, all in good condition, which have been replaced by larger heaters of same make; we have also a number of heaters of various makes and sizes taken in exchange for Berryman heaters, which we will sell cheap; Feed Water Heaters bought, sold or exchanged.

BENJ. F. KELLEY & SON,
91 Liberty Street, New York.

WANTED.—Engine Lathe, screw cutting, compound swivel rest bar and screw feed; would take second-hand if in A 1 condition. Address

"LATHE,"
office of *The Iron Age*, 66 & 68 Duane St., N. Y.

WANTED.—Immediately, one second-hand Power Stamping Press, about the size of a No. 1 Ferracute, in good condition. Address

E. H. MIDDLETON,
Third and Cherry Sts., Philadelphia

ESTABLISHED BUSINESS

FOR SALE.

A Rare Opportunity.

A clean stock of Hardware, House-furnishing Goods, Builders' Hardware, Stoves and Tinware; in a thriving town in Southern New York; only Hardware store in the place; excellent stove trade; business built up and in a healthy condition; established 10 years under present management. Total business this year about $30,000, with good profits; stock will invoice about $6000; good reasons for selling. A splendid opportunity for parties with push and ability. Write at once to

"GOOD BUSINESS,"
office of *The Iron Age*, 66 and 68 Duane st., N. Y.

FOR SALE.

Half interest in first-class Hardware Business, located in Western New York, doing a good, prosperous business; nice, clean stock; will inventory January 1st about $10,000, store large and very convenient; will sell or rent store; reason for selling, wish to engage in other business; this is a rare chance. Address "HALF INTEREST," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOR SALE.

In a very pleasant town in New York, a well established and thriving Hardware business; store is conveniently built for the Hardware trade; sickness necessitates this move. Address STILSON & PEBBLE, Franklin, N. Y., or C. A. DOUGLAS, Middletown, N. Y.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

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338 and 342 E. 7th St., St. Paul, Minn.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SKATES.

A Special Lot of 10,000 Pairs of LONG REACH CLUB SKATES.

Nos. 0, 5, 5 Nickel, 7, 7 Nickel.

A special price made for immediate orders for cash thirty days for this lot only.

Wire or Write for Quotations.

Telegraph Code.

EXAMPLE.—Now, Express, Club, Trust, John, Day, Henry, Cash, Ed, Key, William, Gray, Frank, Hive, Tom, Large.

The above would read as follows: Send at once by express, No 5, N. P., 40 pairs 8 in.; 45 pairs 8½ in., 50 pairs 9 in.; 55 pairs 10 in., 60 pairs 10½ in.; 70 pairs 12 in.; one-half Broad Lugs.

	CODE.
No. 5.	Boot.
No. 5, N. P.	Club.
No. 6.	Hand.
No. 6, N. P.	Arm.
No. 7.	Foot.
No. 10.	Head.
No. 12.	Side.
No. 15.	Snow.
8 in.	John.
8½ in.	Henry.
9 in.	Ed.
9½ in.	James.
10 in.	William.
10½ in.	Frank.
11 in.	Theron.
11½ in.	Fred.
12 in.	Tom.
5 Pair	Bail.
10 "	Round.
15 "	Case.
20 "	Time.
25 "	Paper.
30 "	Ink.
35 "	Pen.
40 "	Trust.
45 "	Day.
50 "	Cash.
55 "	Key.
60 "	Gray.
65 "	Buy.
70 "	Hive.
75 "	York.
80 "	Ohio.
85 "	Maine.
90 "	Jersey.
95 "	Mass.
100 "	Iowa.
200 "	Illinois.
300 "	Indiana.
400 "	Colorado.
500 "	Michigan.
Send at once	Now.
By freight	Freight.
By express	Express.
½ Broad Lugs	Large.

Robt. M. Diaz Co.

292 Washington Street,

BOSTON, MASS.

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THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

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A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.

Hardware Specialties to manufacture in Iron Brass, Bronze, Sheet Steel or Malleable Iron.

THE PERKINS LOCK MFG. CO.,
Cleveland, Ohio.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

FOR SALE.—One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address

VULCAN IRON CO., LTD.,
New Castle, Lawrence Co., Pa.

WANTED.—An active party with capital say $20,000 to $40,000 and with some experience in manufacture of Muck Bars; mill located near Philadelphia and now running successfully; communications treated confidentially. Address "MUCK," P. O. Box 1086, Philadelphia Pa.

FOR SALE, ROLLING MILL.

Unless sooner sold at private sale, the entire property and plant of the Iowa Rolling Mill Company, at Burlington, Iowa, will be offered at public sale to the highest bidder, on the premises, on the 13th day of December, 1890, at 2 o'clock P. M.; property consists of 22 acres of land, 3 dwelling houses, office &c., and the mill buildings, the latter entirely new; one 9 in. and one 16 in. train of rolls, with all necessary gas producers, furnaces, &c. By order of the stockholders; for further particulars address

JOHN F. HOLCOMB, Secretary.

WANTED.

Agency for Nails, Iron, Steel or Railway Supplies, by an experienced man, personally acquainted with Jobbing, Manufacturing and Railroad trade; adjacent to and West of Chicago, would travel portion of time if necessary; A 1 references given. Address

"J. M. S.,"

office of *The Iron Age*, 59 Dearborn St., Chicago.

NOTICE

TO HARDWARE MANUFACTURERS

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
Commerce Street, Philadelphia, Pa.

Factory Wanted.

Factory with 50,000 feet floor space in town with ample labor facilities; place within 300 miles of New York City preferred; the company will begin operation at once, employing 300 female operators. Address

"TEXTILE,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

THE U. S. PATENTS

granted to T. R. Almond for Flexible Metallic Tubing are for sale; parties desirous to become interested in this valuable invention will please address

T. R. ALMOND,
83 & 85 Washington St., Brooklyn, N. Y.

BLOWING ENGINE & FURNACE HOIST FOR SALE CHEAP.

Vertical Blowing Engine, 30 in. steam cylinder 70 in. air cylinder, 5 ft stroke.
Worm Hoist, 24 in. drum.
Both have been used in operating a 70 ton charcoal furnace. Replaced in enlarging plant.
Address "BLOWING ENGINE,"
office of *The Iron Age*, 66 and 68 Duane St., N.Y.

TO MANUFACTURERS of Tools and Machinery and of articles for use in connection with Steam, Water, Gas or Electricity:

A Danish firm, with agents in the principal Scandinavian towns, wants catalogues with cheapest export terms from manufacturers in the above named lines.

JOHS. JOHNSEN,
Copenhagen, Denmark

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need address, with references,

"PARTNER,"
care of The Eaton, Cole & Burnham Co.,
82 & 84 Fulton St., New York.

Hardware Stock For Sale.

An exceptionally good opportunity.

Well assorted and complete stock of Hardware, Stoves, Housefurnishing Goods, &c., and one of the best retail stands in the city of Cleveland; old established and good paying business, nearly all cash; stock will inventory about $10,000 (ten thousand); satisfactory reasons given for selling; terms cash. Address

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office of *The Iron Age*, 66 & 68 Duane St., N. Y.

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HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO.
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HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

PRICE BOOKS.

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POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

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Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

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Specially arranged for the use of
The Hardware Trade and all who buy or sell by "List and Discount."

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An entirely new book, enlarged, improved, perfected. The best and most practical book of the kind ever published; 129 pages, over 40,000 computations, absolutely correct, every page can be instantly referred to; bound in leather; 4x6 inches; price by mail *Three Dollars*. Address

IVISON BLAKEMAN, TAYLOR & CO., New York.
BECKTOLD & CO., 210 Pine Street, St. Louis, Mo.

FOR SALE CHEAP.

A good Safe for storing fine goods.
GRAEF CUTLERY CO.,
98 Duane St., New York.

MACHINE SHOP in Brooklyn for sale; well located on Kent Ave. and established for over five years; first-class tools in good order. Address "A.," 1368 Pacific St., Brooklyn, or, H. HOWSON, 38 Park Row, New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

WANTED, by a wholesale Hardware house, a young man well posted on general Hardware; must write a good plain hand, be familiar with discounts and quick at figures. Address "ACTIVE," office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGHLY competent man to take charge of Furnace Department of a Tube Works. Address, stating experience and names of references, "TUBE WORKS," office of *The Iron Age*, 220 South 4th, St., Philadelphia.

FIRST-CLASS TRAVELING Salesmen who are thoroughly acquainted with the hardware trade to sell screen doors, storm doors, step-ladders and wood novelties on commission. Address, stating experience, territory desired and references, THE BARRETT NOVELTY WORKS Clyde, Mich.

A FIRST-CLASS Salesman to cover New England with small line of Hardware in universal demand, as a side line, on commission. "SIDE LINE," office of *The Iron Age*, 66 and 68 Duane St., New York.

SALESMAN wanted by a large firm manufacturing every variety of tinware and jobbing housekeeping goods; only those having the highest qualifications and an extended acquaintance with the trade need apply. Address "HOUSEKEEPING," office of *The Iron Age*, 66 and 68 Duane St., New York.

SALESMAN wanted by a large firm manufacturing every variety of tinware and jobbing housekeeping goods; only those having the highest qualifications and an extended acquaintance with the trade need apply. Address "HOUSEKEEPING," office of *The Iron Age*, 66 and 68 Duane St., New York.

TWO EXPERIENCED Mechanical Draughtsmen. Apply to
THOMSON ELECTRIC WELDING CO.,
Lynn, Mass.

AN ACTIVE MAN as Superintendent by a manufacturing company in railway line; must be thoroughly familiar with the best practice in manufacturing both in wood and iron; the plant is of good size, modern and splendidly equipped and the business is growing rapidly; the opportunity is a rare one for a first-class man. Address
"RAILWAY,"
office of *The Iron Age*, 66 and 68 Duane Street, New York.

JANUARY 1st, 1891, a Salesman thoroughly acquainted with the Tin Plate and Metal business, to travel Northern and Central Ohio, Indiana, Illinois, Northwestern Pennsylvania, making Pittsburgh as headquarters. To a suitable person a liberal salary will be paid. Address Box 477, Philadelphia Post Office.

BY A PHILADELPHIA Tin Plate and Metal House, on or after January 1, 1891, a Salesman acquainted with the Tin Plate and Metal Trade throughout Wisconsin and the Northwest, to make his headquarters at Chicago or Milwaukee. Address, with reference, "TIN PLATE," office of *The Iron Age*, 220 South Fourth St., Philadelphia.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

TRAVELING SALESMAN wanted in every State, to sell the Smolley "T" Steel Fence Post as a side line, on commission; name territory covered; samples furnished and commission promptly paid. Address JOHN G. SMOLLEY, Connersville, Ind.

TREASURER WANTED.—An experienced financial manager who can control $10,000 to take the position of Treasurer, who has ability and experience in manufacturing. The works are situated in one of the most flourishing and enterprising cities in the Northwest. First-class references given and required. Address "A. D.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

A FIRST-CLASS Machinist on general repair work. Address "GENERAL REPAIRS," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT, MANUFACTURING Co., Cuba, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A YOUNG MAN with a thorough understanding of both Hardware and Paint and Oil trade is desirous of a position as traveling salesman or buyer; eight years' experience; can furnish best of reference and security. Address "H. C.," P. O. Box 98, Rochester, N. Y.

A CHEMIST of experience and ability would like a position at a steel works or blast furnace as Chemist; has had experience at both and can furnish excellent references. Address "E. X.," office of *The Iron Age*, 66 and 68 Duane St., New York.

TRAVELING SALESMAN, with 10 years' experience in Hardware trade, well acquainted with jobbers and retailers, East and West, is open for engagement January 1; would prefer New York agency for manufacturer. Address "G. A. S.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SUPERINTENDENT or Foreman open for engagement; experienced in handling large bodies of men, good manager and a pusher; familiar with engine, mill, tool and general machine work; strictly temperate; age 34 and married. Address "S. & F.," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION to take charge of Hardware Manufactory; thoroughly posted in all its details, and a practical mechanic; good reference. Address "POTTS," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MAN thoroughly proficient in Rolling Mill office work desires position where integrity and experience will be recognized; first-class references from iron manufacturers and from present employers as pay-master and having charge of and preparing all orders for mills. Address "PROFICIENT," office of *The Iron Age*, 66 and 68 Duane St., New York,

A GOOD SMART MAN, 26, who thoroughly understands general and builders' hardware, iron, steel, mechanics' tools, tin, agate ware and house furnishing goods, is now engaged as manager of a Jobbing Hardware House in New York City and would like to make a change January 1st, 1891; understands bookkeeping and office work and is well posted in buying goods. "W. M. H.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A FIRST-CLASS MECHANIC and Tool Maker is open for engagement as foreman or superintendent of machine shop; is experienced in handling men in manufacturing of machinery and tools; can furnish good recommendations as to ability; is steady and strictly sober. Address "F. A. L.," office of *The Iron Age*, 66 and 68 Duane St., New York.

MECHANICAL ENGINEER, scientifically educated and with several years' experience of an unusually varied character, and who posesses business and executive ability of a high order, is at liberty to make an engagement in a responsible position in any part of the world. Address "E. Y. T.," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

FOUNDRY FOREMAN seeks reengagement; practical man in all classes of work, in green, dry sand and loam, mixing of irons and cupola practice; 23 years' experience. P. O. Box 718, Chicago, Ill.

I WANT STAPLE LINES for the large retail and intermediate jobbers of the West and Southwest; salary without expenses; 20 years' experience in selling goods on the road; plenty of references. Address LOCK Box 407, New London, Ohio.

A LIVE SALESMAN is now open for an engagement January 1st; or would like to represent one or two manufacturers of novelties (merit preferred) in New York and vicinity; experienced, city and road; A1 references; nine years present employer. Address "LIVE SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN of 30 years' experience as Superintendent would like to have a situation; knows all about mining and separating ores and erecting machinery; 4 years superintending charcoal furnace; 14 years at one place; had charge of 50 to 90 men; no objection to go outside of Pennsylvania; first-class references. Address "SITUATION," Box 52, Fleetwood P. O., Berks Co., Pa.

BY A FIRST-CLASS machinist, as foreman or any responsible position where ability will count; experienced in building marine and stationary engines, hydraulic machinery and rolling mill work; can handle men to advantage and good draughtsman; vicinity of New York preferred. Address "ENERGETIC," Box 40, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

GRADUATED MECHANICAL ENGINEER, ten years' experience in machinery for manufacture of iron and steel, and who has made a specialty of heavy hydraulic machinery, will shortly be open for engagement. Has had complete charge of design and erection of hydraulic forging plants and is at present occupied in such a capacity at large iron works. Parties wishing to correspond, address "HYDRAULIC," office of *The Iron Age*, 220 So. 4th St., Phila., Pa.

POSITION as superintendent of wire nail and wire mill, rolling mill or tack factory; 25 years' experience in building, erecting and superintending above branches. Will guarantee unexceptional testimonials, and build the best machinery in the U. S. for entire outnt of above mills. At present superintendent of large mills. Address "SMITH," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, pipe mill machinery, engines and boilers, roof construction, sugar machinery, &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

A STEADY, reliable man, aged 34, 16 years experience as a practical brass finisher in a plumbers' supply manufacturer's, desires to connect himself with an establi-hed brass works as Superintendent; can handle any amount of hands; as to ability, can furnish the best of reference of 16 years' standing from last employer. "BRASS WORK" P. O. Box 109, Lawrence Station, Long Island, N. Y.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

POSITION as Superintendent of Steel Plant; have had 6 years' experience in Beam and Plate Mills at Homestead as Roller and Superintendent of Department; have worked both Bessemer and Open-Hearth steel for four years, also Basic Open-Hearth for 2½ years. Address "BEAM" office of *The Iron Age*, 66 and 68 Duane St., New York.

A BRICKLAYER desires a situation as Foreman in a Rolling Mill; has had several years' experience in building and rebuilding regenerative and open-hearth furnaces and all other repairs, and also understands the nature and making of artificial gas; references can be had where last employed. Address C. WEBSTER, Eighth Ave., Beaver Falls, Pa.

BY A GENTLEMAN thirty-six years old; have traveled six years representing a manufacturer of hardware specialties; well informed; well acquainted with the trade; competent to manage; correspond or travel as salesman; no preference as to territory; references as desired; correspondence solicited. Address "C. E.," office of *The Iron Age*, 66 and 68 Duane St., New York.

AS SUPERINTENDENT of Blast Furnace, by a practical man of experience in operating and burdening furnaces, including all chemical work; can take hold in any position; best of references. Address "HOT BLAST," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TO SHEET BRASS MANUFACTURERS.—A man with twenty two years' experience in the sheet brass and copper manufacture desires to connect himself with an established works as superintendent; has had thorough experience in the detail and management of all the departments of rolled sheet brass manufactures; he has studied the economies and mechanical problems connected therewith, he can give the best of recommendations as to his qualifications. Address "MANAGEMENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

POSITION as manager or assistant manager in iron mill or steel plant; have had 15 years' experience in bar, guide and hoop mill, and two years in beam, channels and angles. Address "D. H." office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh, Pa.

POSITION by an experenced Traveling Salesman, who has trade and the acquaintance of all the large buyers and purchasing agents of railroads, hardware and machinists' supply trade. Address "M. M. A.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BY AN EXPERIENCED Mechanical Draughtsman, specialist on wrought iron structural work, a permanent position from January 1st, 1891. Please address "STRUCTURAL" Box 818, office of *The Iron Age*, 66 and 68 Duane St., New York.

AN A 1 HARDWARE and Specialty Salesman desires a resident agency at Buffalo, New York; willing to travel in the vicinity; highest of recommendations. Address "RESIDENT," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A THOROUGHLY practical Hardware Man of 15 years' experience, most of the time buyer and correspondent, would like a situation with some first-class hardware house; acquainted with all details of a large business; 37 years' old; energetic and systematic in all work; unquestionable references. Address "OLCUTT," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SITUATION as foreman of foundry; am well posted in all foundry practice. Address "FOREMAN," Office of *The Iron Age*, 59 Dearborn Street Chicago.

SITUATION as roller on bar or guide mill; 20 years' experience in states or pipe iron mills; good reference given for skill and sobriety. Address "MOORE," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MARRIED MAN who has had ten years' experience at bookkeeping, labor accounts, cost sheets of jobs, &c., in general machine shop, boiler shop and foundry business; thoroughly reliable and acquainted with the business, clerically, in all its details. Address "CLERICAL," office of *The Iron Age*, 66 and 68 Duane street, New York.

AN EXPERIENCED Mechanical Engineer, thoroughly educated with shop and mill practice, desires a position; familiar with steel works, blast furnaces, modern machine tool design, steam plants, and handling of materials, simple methods of office management and shop accounts; ample references of ability and thoroughness. Address "SAFE PRACTICE," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BY JANUARY 1st, a position by a practical machinist accustomed to handling large bodies of men on engine work and machine tools; has traveled very extensively for eight years in and out of the U. S., in the interest of a well known Engine Co.; is well up in high speed and compound engines for electric light and street railway work and can make estimates on the same, including installation; Pacific Coast preferred. Address "P. T. H.," office of the *The Iron Age*, 66 and 68 Duane St., N. Y.

BALANCED BARROW,
Carries a Ton. One Man Power.



GRANT McNEIL,
148 N. Main St.,
AKRON, OHIO.

NOW THEN, DO

You want to sell the best coffee grinding apparatus ever made? Do you want to make as much profit (or a little more), than your competitor. Do you want a mill that is endorsed by all who have seen it; condemned by none; one that is the handiest in the world; one that the user **can hold** while using? We make it, sell it and advertise it some. You will help yourself more than us by trying a sample lot. Made in all finishes. We're located at **LANCASTER, O.**, our name:



No. 55,
NICKEL.

MEANS MFG. CO.,

Your letters, &c., will have prompt attention.

THE CAMBRIDGE IRON & STEEL CO.

MANUFACTURERS OF

SHEET IRON AND SHEET STEEL

Squared Roofing Sheets a Specialty.

CAMBRIDGE REFINED IRON. TRADE MARK

CAPACITY RANGES FROM No 30 TO 26 INCHES WIDE TO 1-4×40×120

CAMBRIDGE SOFT STEEL. TRADE MARK

CORRESPONDENCE SOLICITED

OFFICE AND WORKS CAMBRIDGE, OHIO.

ELECTRICITY

IN THEORY AND PRACTICE,

—OR THE—

ELEMENTS OF ELECTRICAL ENGINEERING.

By LIEUT. BRADLEY A. FISKE, U. S. N.

270 8vo PAGES. 180 ILLUSTRATIONS.

$2.50 —PRICE— **$2.50**

This Book commends itself to Electricians and the Students of Electricity, because it aims to form a bridge between the many works written on the theory of electricity and the many works written on its practical applications.

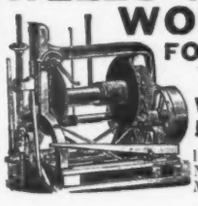
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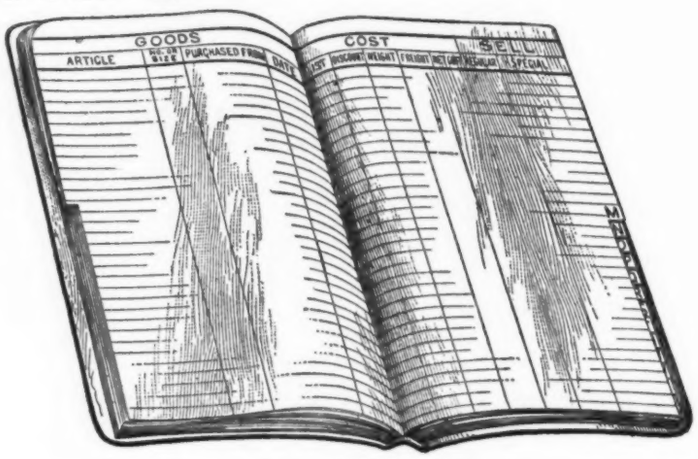
BOOK A.

Columns are provided for the name and number or size, for noting from whom purchased, date of quotation or purchase, list and discount, and for entering freight expenses as an element of cost. Under the heading of selling prices, the regular and any special price or remarks in regard to the goods are given place. This book goes into considerable detail in describing the goods and cost prices. It has been arranged in accordance with the views of many Hardwaremen whose methods are careful and exact.

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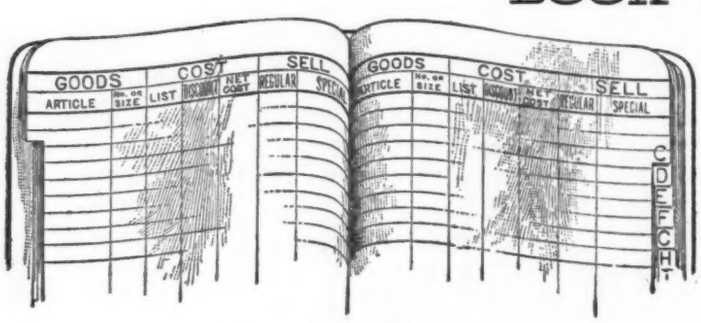
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BOOK B.



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In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations sufficiently large for the convenient and concise record of prices.

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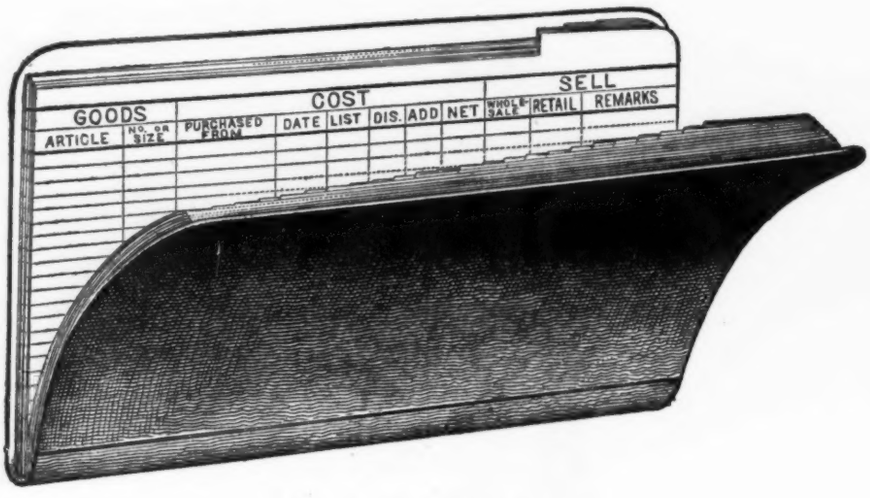
BOOK C.

The headings in book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price and also for any remarks in regard to cost of the goods, desirability of pushing them or other matters.

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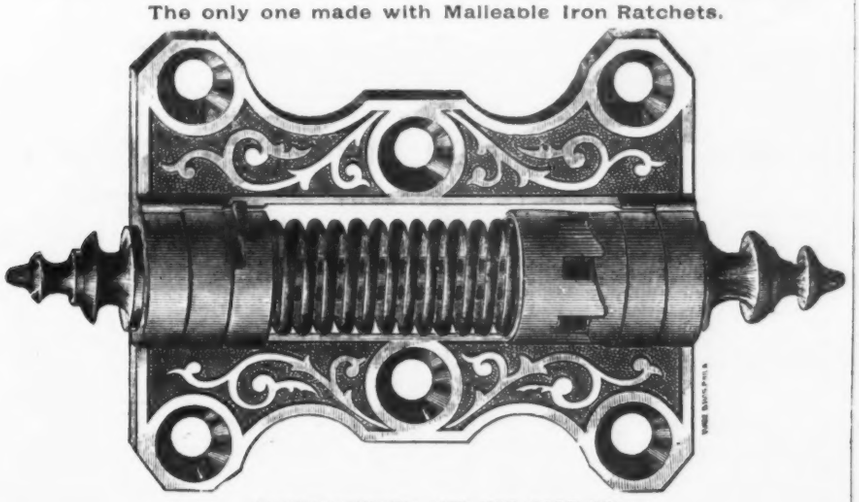
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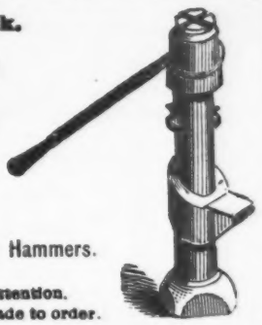
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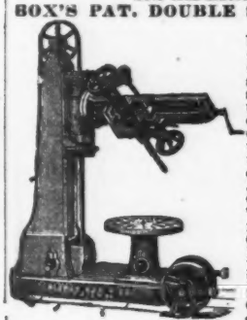
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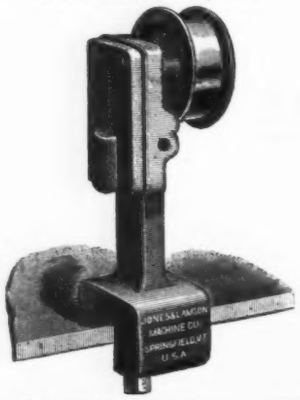
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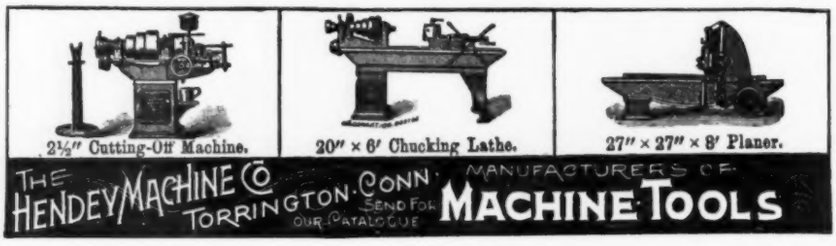
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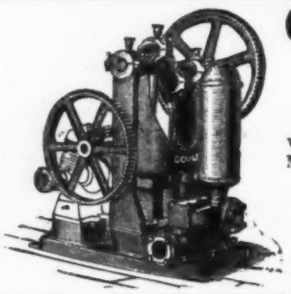
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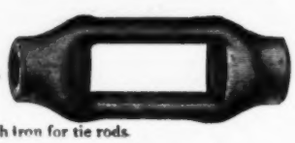
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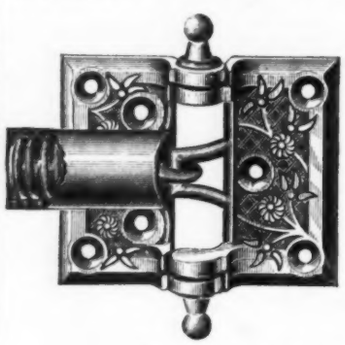
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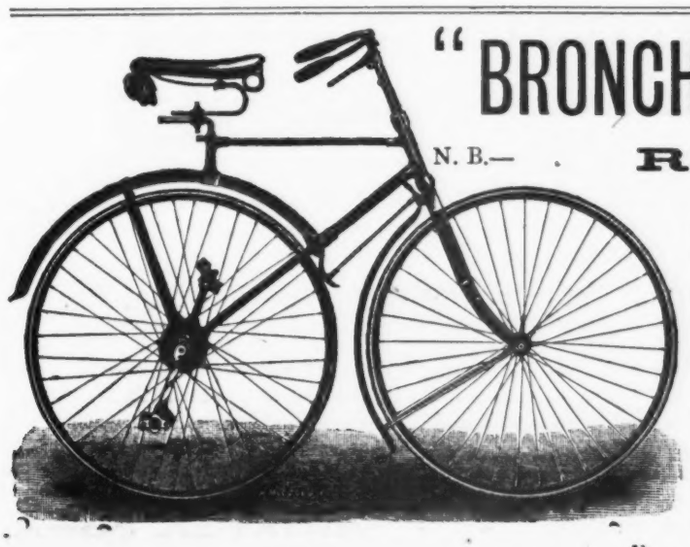
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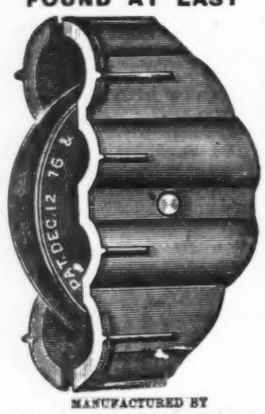
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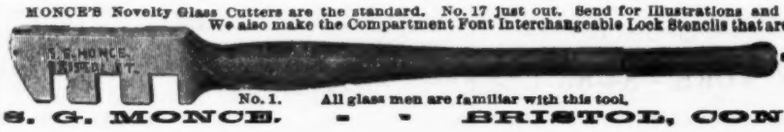
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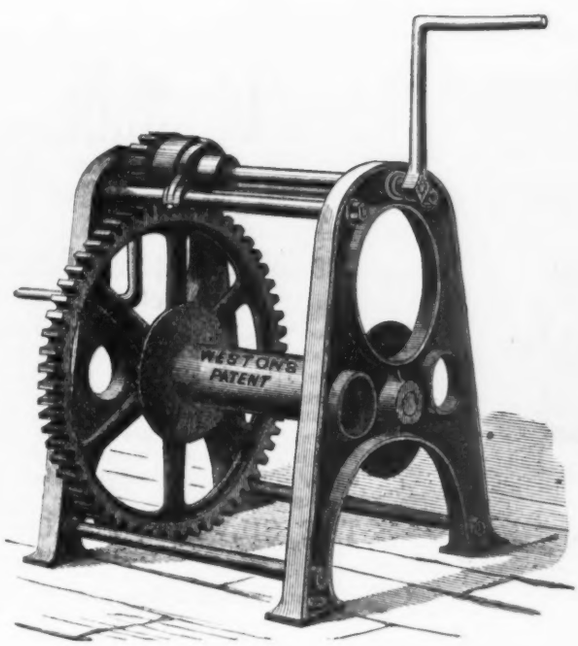
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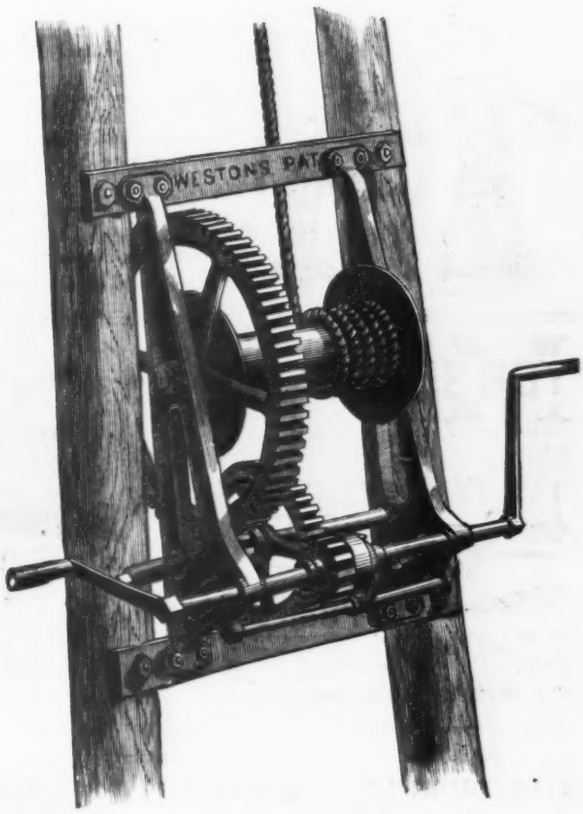
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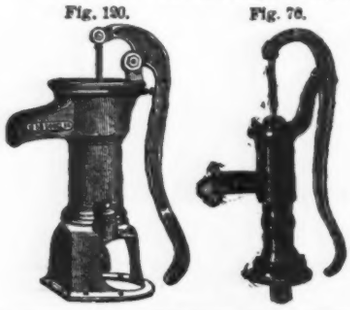
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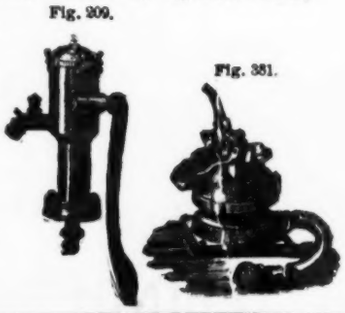
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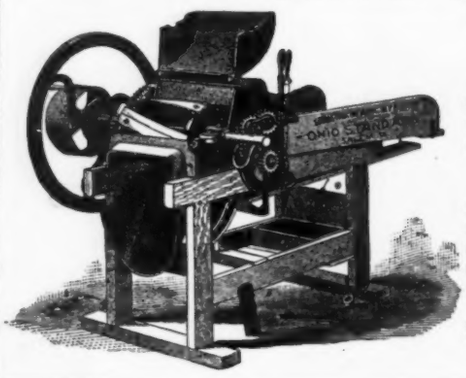
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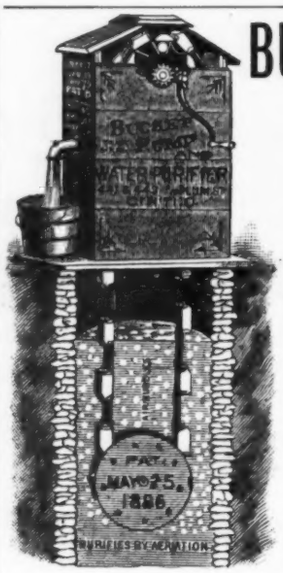
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For Wells and Cisterns of any Depth.

Warranted to Purify a Foul Well or Cistern in Ten Days' Use or Money Refunded.

It will draw ten gallons of water per minute.
Never has to be packed, primed or thawed out.
A ten-year old boy can draw water with ease from a 40-ft. well.
No iron tubing to rust or burst. No suckers or valves to wear out.
It has no wooden tubing to wear out, decay or pollute the water.
It will not rust or corrode, as the chain is made of galvanized iron.
It is the simplest and most durable structure made for raising water.
It can be set up in 15 minutes, as there is nothing to fasten below the platform.
It will not freeze, having stood the test of a Dakota winter, 38 degrees below zero, as the buckets discharge themselves.
Has no leather, rubber or wood in contact with the water to contaminate it.
You do not have to pump out a pailful of water to get a fresh, cool drink for every bucket goes down full of air to the bottom and fills with cold water as the air escapes.

BUCKET PUMP CO.,

(Sole owners of patents for the U. S. and Canada)

441 and 443 Plum St., CINCINNATI, O.

EXCLUSIVE AGENCIES GIVEN.

Beware of infringers. No perfect working Pump can be made on this principle without infringing on our patents.

ENTERPRISE SPECIALTIES



New Champion Force Pump.

With vacuum and air chambers, brass cylinders and brass valve seats—continuous discharge—working parts readily accessible.

Reversible Float Valve For high or low pressure. Positive in action.

Pipe Vise—For bench or wagon. A low-priced, serviceable tool, capacity 3-8 in. rod to 2 in. pipe.

Ratchet Die Stock—For plumbers, pump men, gas fitters: threads pipe in corner, in ditches, in wells, or other difficult places.

ENTERPRISE CO., Sandwich, Ill.

THE HOLMES & EDWARDS SILVER CO.,

—MANUFACTURERS OF—

Sterling Silver Inlaid, and Silver Plated Spoons, Forks, &c.

The Most Durable Plated Goods Made.

Also the following brands, solid metal



67 Mexican Silver. 50 Nickel Silver.
24 German Silver. 30 Silver Metal.

Catalogue I furnished in English and Spanish.

Bridgeport Conn. U. S. A.

R. WALLACE & SONS MFG. CO.,

SILVER AND PLATED WARE

AND CUTLERY.

FACTORIES:

WALLINGFORD, CONN.

NEW YORK SALESROOM:
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CHICAGO SALESROOM:
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Genuine Rogers Silver Plated Ware

Bears the Rogers Trade-Marks.



The "Opal."

These Goods are RELIABLE. Take No Other.

Manufactured by THE WM. ROGERS MFG. CO.,

P. O. Drawer 30. Office and Factory, HARTFORD, CONN.

HALL & ELTON'S GERMAN SILVER.

1837



HALF A CENTURY.

1890

The Pioneer Makers of German Silver Goods.

HALL, ELTON & CO., - - - WALLINGFORD, CONN.

E. C. ATKINS & CO., Indianapolis, Indiana.

SILVER STEEL DIAMOND CROSS-CUT.

We are the sole manufacturers of Silver Steel Saws, and enjoy the distinction of not only having first introduced the best Saws, among which are the Champion, Diamond and Dexter, but of improving and maintaining the quality of Saws to a degree which challenges comparison.



ATKINS'

Cross-Cut, Circular, Band and Gang

SAWS

Are Everywhere Recognized as the

Standard of Excellence.

Western agency for Tanite Emery Wheel.



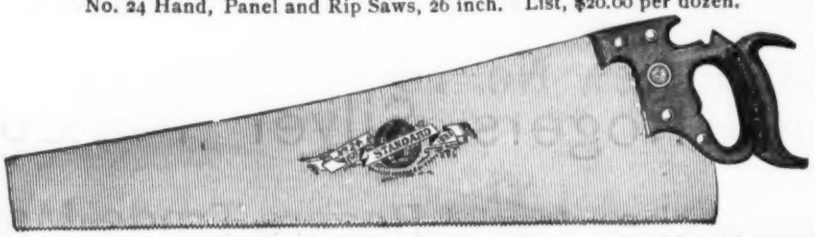
Ground Substantially uniform gauge on the toothed edge, and any gauge required on the back.

ESTABLISHED 1853.

MANUFACTURERS OF HAND, CROSS-CUT AND WOOD SAWS.

No. 24 Hand, Panel and Rip Saws, 26 inch. List, $20.00 per dozen.

Extra Thin Back.
Patent Handle.
Hollow-Back Blade.



Perfect Temper.
Elegant Finish.
Superior Filing.

This is the best and cheapest saw made for the mechanic's use. It is fully warranted and will outlast any other saw on the market.

WHEELER, MADDEN & CLEMSON MFG. CO., Middletown, N. Y.

J. M. KING & CO.,

WATERFORD, N. Y.,

Manufacturers of

BUTTON'S

Pat. Wire Cutter

AND PLIER COMBINED.



Specially Adapted for Use on Wire Fence.

Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCREW TAPS PIPE TAPS and REAMERS.

Price List on Application.

Established by DANIEL B. KING, 1829.

ARTHUR BRITTAN. GLENDY S. GRAHAM. PHILIP MATHES.

BRITTAN, GRAHAM & MATHES,

—MANUFACTURERS OF—

BUILDERS' = FINE = HARDWARE.

KNOB LOCKS, DEAD LOCKS, SLIDING DOOR LOCKS, BARN DOOR LOCKS, PADLOCKS, LATCHES AND COUNTER SCALES.

Special Attention Given to Fine Castings in Iron, Brass and Bronze.

BRONZE, BRASS, SILVER, OXIDIZED SILVER and NICKEL PLATING.

Principal Office,
411 Wood Street, Pittsburgh, Pa.

Catalogues and Lists mailed on application.

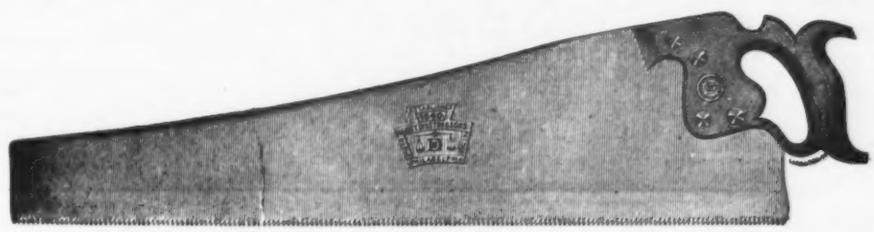
BRITTAN & BOND, Agents,
154 Lake Street, Chicago, Ill.

"If you want a Saw it is best to get one with a name on it which has a reputation.
A man who has made a reputation for his goods knows its value as well as its cost and will maintain it."—HENRY DISSTON.

THE SAWS THAT LEAD THEM ALL

"THE SAW;" HOW TO CHOOSE IT, AND HOW TO KEEP IN ORDER, Sent Free on Receipt of Name and Post Office Address.

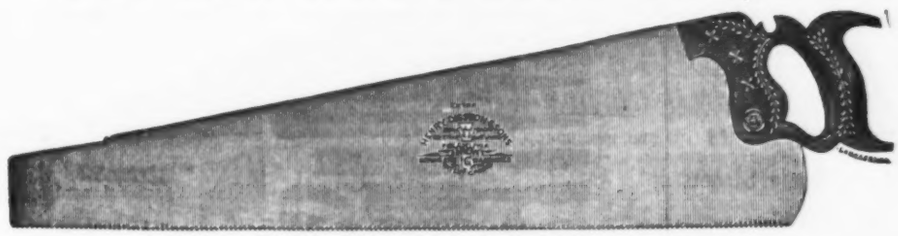
DISSTON & SONS' PATENT D-8 HAND SAW.



This Saw combines all the valuable improvements in Hand-saws that have been made by us of late. The first and most important is the hollow or skew-back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

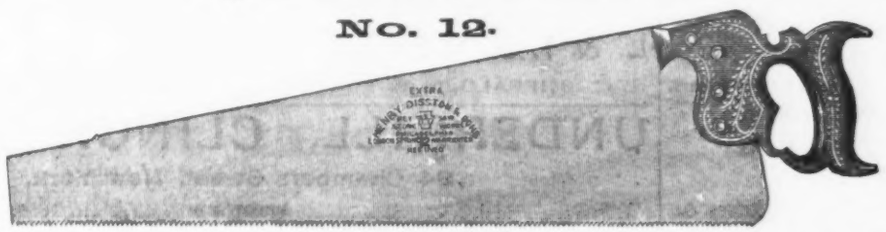
Our New No. 16 Premium Saw.



AN EXTRA FINE SAW IN EVERY RESPECT.

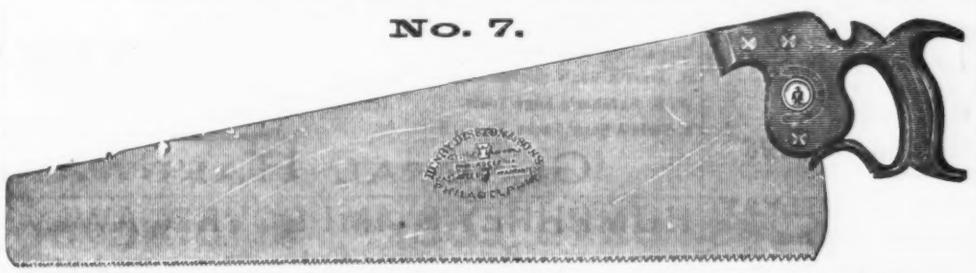
Having the Latest Close up Handle, Spring Steel Blade, Extra Thin Back, Finely Grained, with an Apple Handle and Four Brass Centennial Screws.

No. 12.



DISSTON & SONS' Extra Refined London Spring Steel, Selected and highly Polished Blade, Handle Carved and Polished, 4 Improved Brass Screws, the finest Hand Saw manufactured.

No. 7.



DISSTON & SONS' Cast-Steel, Warranted, Beech Handle, Polished Edge, 4 Improved Screws, Grained Blade.

"POCKET EDITION OF THE SAWYER" and "LUMBERMAN'S HAND BOOK," Sent Free on Receipt of Name and Post Office Address.

ASK YOUR DEALER TO ORDER THEM FOR YOU.

HENRY DISSTON & SONS,

(INCORPORATED.)

Keystone Saw, Tool, Steel and File Works, Philadelphia, Pa.

TRADE MARK

John Wilson's Butchers' Knives and Steels,

Skinning, Sticking, Farriers' & Shoe Knives,

Have established and maintained their reputation. for superiority, against all Competitors. from

THE YEAR SEVENTEEN HUNDRED & FIFTY,

and are still in increasing demand. As in the past. it is the unalterable

DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.

WORKS: SYCAMORE STREET, SHEFFIELD, ENGLAND.

SOLE AGENTS FOR THE UNITED STATES. AND THE CANADAS.

Messrs. Hermann Boker & Co., 101 and 103 Duane St., New York.

JOHN WILSON'S

BUTCHERS' KNIVES, BUTCHERS' STEELS AND SHOE KNIVES.

HERMANN BOKER & CO., 101-103 DUANE STREET, NEW YORK,

Have satisfaction in apprising their friends that they have received

THE SOLE AGENCY FOR THESE CELEBRATED GOODS

IN THE UNITED STATES AND THE CANADAS,

And they will always be in a position to supply them in any quantity, and with the greatest possible promptitude.

Established 1836.

Alfred Field & Co.,

93 Chambers and 75 Reade Streets.

NEW YORK

IMPORTERS OF

HARDWARE, CUTLERY, GUNS.

SOLE AGENTS FOR

Joseph Elliot & Son's Razors.
Eley Bros.' Caps, Wads, &c.
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HEADQUARTERS FOR

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W. & S. Butcher's Razors.
John Wilson's Butcher Knives. &c.

ANVILS. CHAIN. FILES.

CORPORATE MARK,

JOSEPH RODGERS & SONS'

LIMITED)

CELEBRATED CUTLERY,

No. 82 Chambers Street, New York.

F. & W. CLATWORTHY, AGENTS.

The demand for JOSEPH RODGERS & SONS' productions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam-power.

To distinguish articles of JOSEPH RODGERS & SONS' manufacture, please to see that they bear their Corporate Mark.

AMERICAN TOOL COMPANY

NEW YORK.

MANUFACTURERS OF

TOOL CHESTS

Of all sizes complete with tools, for Hardware, Toy Notion and Variety trades.

Factory and Salesroom,

200 West Houston Street, near Varick.

Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application.

HIGHEST AWARD PARIS EXPOSITION, 1889.

ESTABLISHED 1857.



L. & I. J. WHITE, MANUFACTURERS OF EDGE TOOLS.

BUFFALO, N. Y.

Coopers', Carpenters' and Ship Tools, Plane Irons, Cleavers, &c. Full Line Chisels.

UNDERHILL, CLINCH & CO.,

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DEPOT FOR

American Screw Co.'s Wood, Machine and Rail Screws, Stove and Tire Bolts, Rivets, &c.

Richardson Bros.' Saws.
O. Ames & Son's Shovels, Spades and Scoops.
W. S. Butcher's Edge Tools.
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Nicholson File Co.'s Files.
Russell Jennings' Auger Bits.
Welsh & Lea's Norway Iron Carriage Bolts.
Germantown Tool Works' Hammers, Hatchets, &c.

GENERAL HARDWARE.

HUMPHREY'S IMPROVED AWL HAFT.

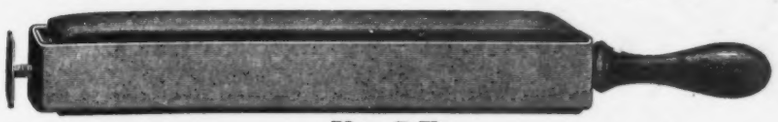


OUR NEW HANDLE has many points of improvement and beauty over any other Awl Haft now on the market. The metal portions are nickel, making a fine contrast with the fancy wood of the handle. The Awl has a square shank, which prevents turning, and it cannot pull through the cap when used in the hardest wood. The tools, 8 awls, 1 screw driver and 1 point, are held in separate cells under the ring at the top of the handle. The ring has one hole in it, which when revolved passes over each cell containing the tools, and is automatically locked at any desired point. It also forms a covering for all the tools when not in use. *Send for prices.*

HUMPHREY TOOL CO., Warren, Mass.

J. R. TORREY & CO., Worcester, Mass.,

New York Office: 97 Chambers Street.



No. 8 X.

The **TORREY RAZOR STROPS** are known the world over as the standard for excellence in setting a fine edge. We manufacture and carry in stock more than 150 styles.

——Send for Illustrated Catalogue.——

SEYMOUR'S
SHEARS AND SCISSORS.

Finest in Finish and Quality.

PRICE-LISTS ON APPLICATION.

275 Kinds and Sizes.



I have handled your shears very sucessfully for the past **TWENTY-FOUR YEARS.**
JOHN MAYOR,
Macon, Mo.

HENRY SEYMOUR CUTLERY CO., 84 & 86 Chambers St., N. Y. City.

BUCK BROTHERS' EXTRA



BUCK BROTHERS, MILLBURY, MASS.

The Most Complete Assortment in the U. S. of

Shank, Socket Firmer and Socket Framing Chisels.

PLANE IRONS.

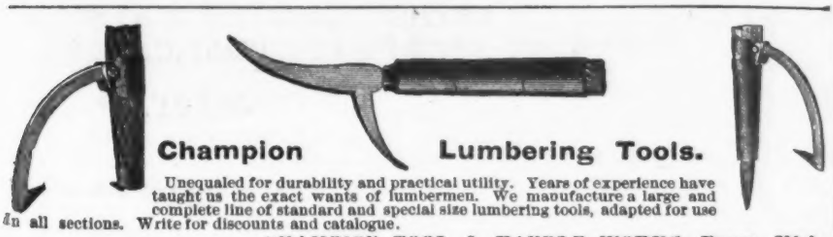
CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark also, "Riverlin Works."

Fine Hand Forged Pocket Cutlery. The Handsomest and Best Razors in the World. Star Shears, Table Cutlery, Etc.



AMERICAN KNIFE & RAZOR CO.,

Wholesale Cutlery Only. **509 N. 3d STREET, ST. LOUIS.**



Champion Lumbering Tools.

Unequaled for durability and practical utility. Years of experience have taught us the exact wants of lumbermen. We manufacture a large and complete line of standard and special size lumbering tools, adapted for use in all sections. Write for discounts and catalogue.

CHAMPION TOOL & HANDLE WORKS, Evart, Mich.

Cast Shears.

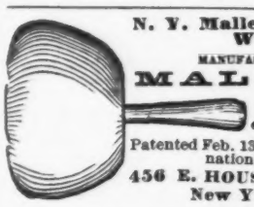
ACME SHEAR CO.,

BRIDGEPORT. - CONN.

MARTEN DOSCHER,
Commission Hardware.

88 Chambers St., New York.

Agent—G. W. Bradley's Edge Tools, Axes, Coopers' Tools, Cleavers, Bush Hooks, Draw Knives, Ship-Carpenters' Tools, &c. Also a full stock of Planes, Brooks' Bright Wire Goods, Washita Stone and Taunton Tack Co.'s Rivets, &c.



N. Y. Mallet and Handle Works,

MANUFACTURERS OF

MALLETS.

Also Cotton and Bale Hooks.

Patented Feb. 13, 1877, a new combination of Hooks.

456 E. HOUSTON STREET
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BROOKLYN MALLET & HANDLE WORKS,

MANUFACTURERS OF

Caulkers', Carpenters', Stone Cutters, Tin, Copper and Boiler Makers' **MALLETS.** Extra grades of all kinds of Chisel, Axe, Adze and Hammer **HANDLES.**

Office and Store Room, 17 MURRAY ST., NEW YORK.
Factory, Northport, L. I.



ALASKA STOVE TRIMMINGS

Will not get hot.

Stove Pokers,

Lifters,

Shovels.

Heavily Nickel Plated and Superior to all Others.

Troy Nickel Works,

TROY, N. Y.

Electric
TRADE MARK

The TRADE-MARK and LABEL of a well-known and responsible manufacturer is the best protection the public can have.

THE ELECTRIC CUTLERY COMPANY.

NORTHAMPTON CUTLERY CO.,

NORTHAMPTON, MASS., and 122 CHAMBERS ST., NEW YORK.



FRENCH COOKS' KNIVES, 6 to 14 inch. Forks to match. Handles cannot come loose.

We warrant this knife superior in material and workmanship to any Cooks' Knives in the market, either home manufacture or imported. Our specialties are Butchers', Carvers and Cooks' Knives. Fine table plated goods.

Estimates given for quantities with special stamps or trade-marks. **Every hardwareman** should have **our Catalogue.** Sent free on application.

THE EMPIRE KNIFE COMPANY,



(BEARDSLEY & ALVORD, 1856.)

SOLE MANUFACTURERS OF

Empire - Pocket - Knives

And Empire Solid Steel Blade Shears and Scissors.

We manufacture also a complete line of forged steel Corkscrews and make a specialty of making Special Screws for parties owning patents.

FACTORY AND OFFICE, - - WEST WINSTED, CONN.



Closes doors without slamming or breaking of Glass.



FOR SALE BY
NORTON DOOR CHECK AND SPRING CO.,
Sears Building, Boston, Mass.
AGENTS WANTED.

TORREY'S PLUSH LINED SAMPLE ROLLS

WILL LARGELY INCREASE CUTLERY SALES.

GOODS WELL DISPLAYED ARE HALF SOLD.



TRAVELERS ARE PROUD TO SHOW THEM.

SAMPLE ROLLS OF EVERY DESCRIPTION.

PLUSH AND CHAMOIS COUNTER MATS.

PRICES QUOTED ON RECEIPT OF SPECIFICATIONS.

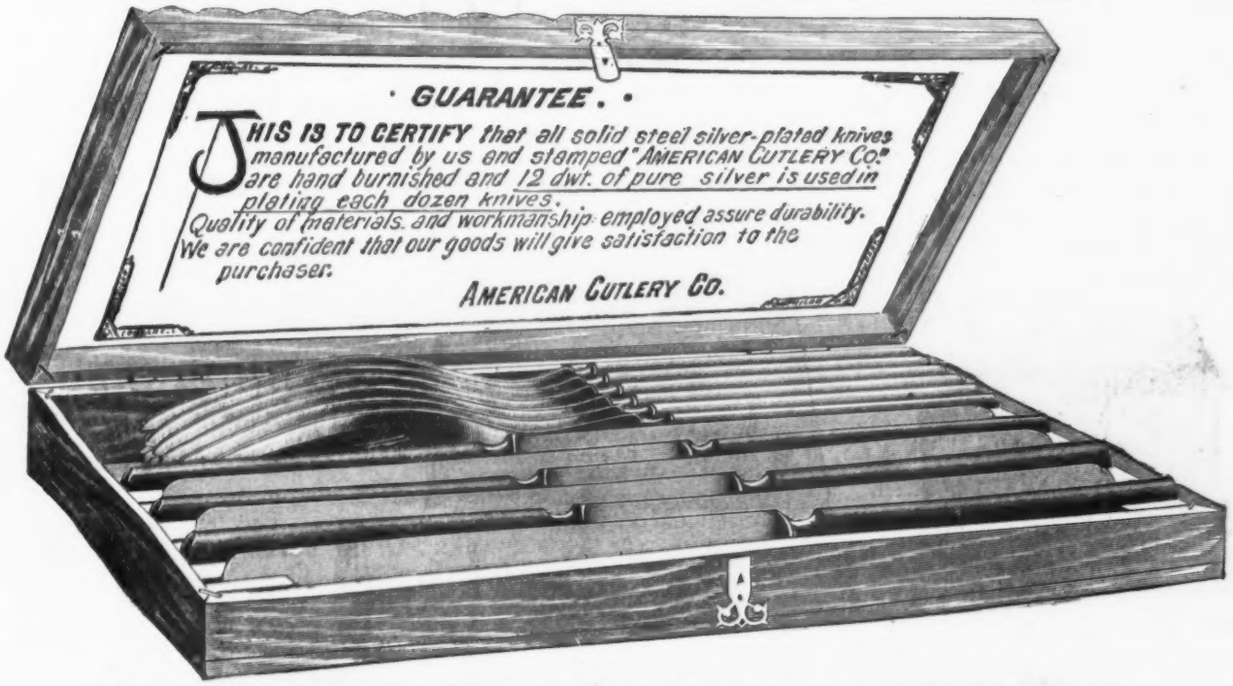
J.R. TORREY & CO., Worcester, Mass.

Most Extensive Makers of RAZOR STROPS.

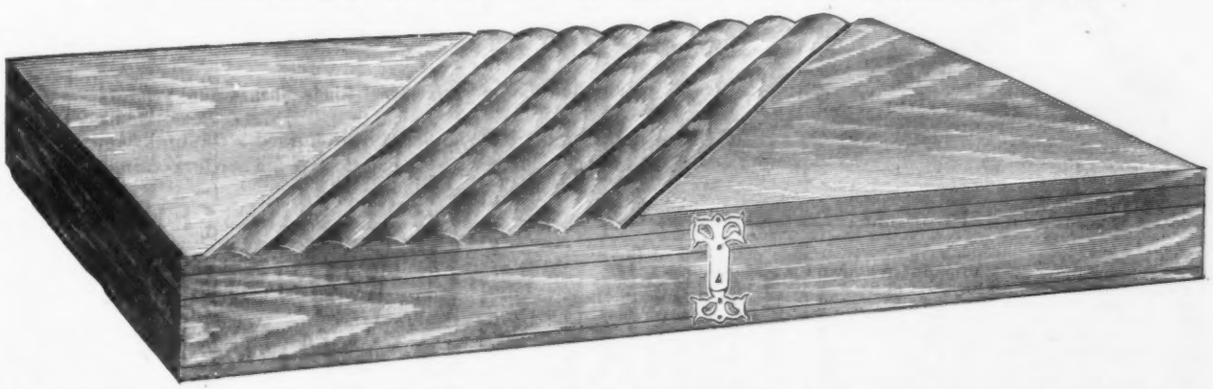
THE ART AND PRACTICE OF SILVER PRINTING. By CAPT. ABNEY and H. P. ROBINSON. Second edition, 12mo, cloth, **$1.00.** Sent, postpaid, upon receipt of price, by DAVID WILLIAMS, 66 and 68 Duane Street, New York.

ONE OF OUR LEADERS.

ORDER A SAMPLE DOZEN.



AN ELEGANT HOLIDAY PRESENT.



The above illustrates one set of **PLATED KNIVES** and **FORKS**, ½ Doz. each, **PACKED IN FANCY CARVED HARDWOOD BOX. NO EXTRA CHARGE FOR BOX.**

These knives are made in one piece from finest crucible steel, well forged and evenly tempered by the latest improved process, and specially ground and polished for silver plating. Twelve (12 DWT.) pennyweight of pure silver is used in plating each dozen, and every part of each knife is hand burnished by experienced workmen, rendering plating hard and durable. Our sales of these Silver Plated Knives and Forks during the past year, and the growing demand for them, are assurances that their worth is known ; a TRIAL will convince you that we have not overrated them.

Take advantage of our low prices and send us your orders early, on account of the

STEADILY INCREASING COST OF SILVER.

We also manufacture a large assortment of other goods, consisting of a full line of TABLE CUTLERY, BUTCHER KNIVES, CARVERS, BREAD KNIVES, KITCHEN KNIVES, SHOE KNIVES, BONNING KNIVES, HUNTING KNIVES, PUTTY and CIGAR KNIVES, STICKING and SKINNING KNIVES, BUTTER AND CHEESE KNIVES and BUTCHERS' STEELS.

Our line of extra fine Table Cutlery with Fancy Handles of PEARL, IVORY, EBONY, WALRUS, COCOBOLA, RUBBER, CELLULOID and BONE, are unexcelled. They are finished in the latest patterns, best workmanship and guaranteed extra quality steel.

WRITE FOR PRICES AND CATALOGUE.

AMERICAN CUTLERY CO.,

173 to 191 Mather Street, CHICAGO, Ill.

C. E. JENNINGS & CO.,

—MANUFACTURERS OF—

Mechanics' Tools and Hardware Specialties,

FACTORIES AT YALESVILLE and CHESTER, CONN.; also HINSDALE, N. H., and PORT JERVIS, N. Y.

Office: 79 Reade St. and 97 Chambers St., New York.

All Tools bearing our name are *fully warranted* and can be obtained through the Hardware Trade generally.

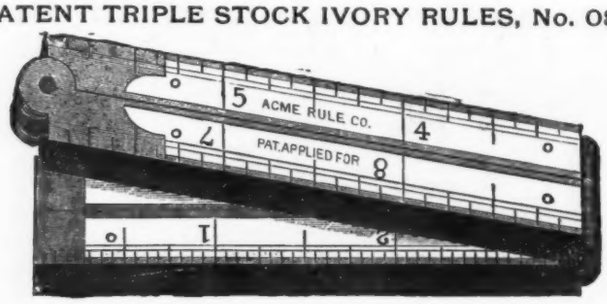
THE MODEL TOOL CHEST, No. 55.

Made from Hardwood and fitted with Tumbler Lock. Made with drawer at bottom, and two inside Sliding Tills. Every Tool in this Chest is *warranted* to be of good quality.



Can make to order Tool Cases of larger sizes if required. We keep in stock empty Tool Chests of the following sizes: 18 x 10 x 7⅛, 24 x 12½ x 9½, 30 x 15 x 11⅛.

PATENT TRIPLE STOCK IVORY RULES, No. 088.



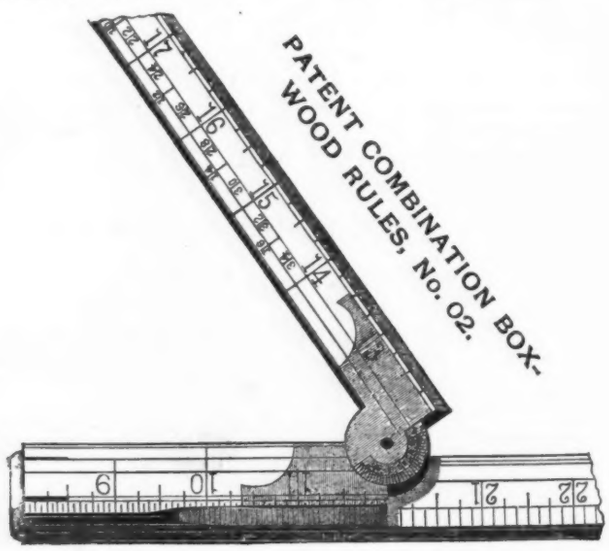
This cut represents our patent triple stock rule, composed of Boxwood and Ivory, combining the best materials known for pocket Rules.

The advantages claimed for this rule are:

It is stronger and more durable than a solid Ivory rule because the Boxwood center, outlaid with Ivory and full bound with German silver, makes a combination which is practically indestructible as regards the severe tests a rule is subjected to. Its elasticity is many times that of a solid Ivory rule.

The joint rivets and pins are made of German Silver and will not rust.

It is made with our *new joints*, which show less metal and plainer graduations. It is pinned through the wood to hold joints and binding, and by this is not weakened as in a solid Ivory rule. These rules are all graduated, 8ths, 10ths, 12ths and 16ths.



The above cut shows our new two foot three joint Combination Boxwood Rule. The middle joint is graduated on a circle by which any desired angle can be obtained, also a graduation between figures 20 and 21, which gives different inclines, an inch to the foot. It can be used as a Try Square, T Square and Bevel.

The rule is graduated in 8ths and 16ths, and to a scale 1, ½ and ¼.

For Mechanics' and Architects' work it has no equal.

We manufacture a full line of

CLEAVERS AND CHOPPERS, also BUTCHER SAWS

of all patterns



ROBBINS' BUNG BORER, No. 10.

This Bung Borer will cut any size hole from 1 to 2 inches. Comes packed with handles or can be used in a Bit Brace.



JENNINGS' NEW PATTERN BUNG or TAP BORER, No. 6.



C. E. JENNINGS & CO.'S BOX SCRAPERS.

NEW PATTERN, No. 6¼.



These Box Scrapers are made from selected Cast Steel, and fully warranted. The tang runs through the handle and is riveted, thus making a strong and practical tool which will be appreciated by those who are looking for the best article in the market.

Peter Wright's Patent Solid Wrought Anvil

PETER WRIGHT PATENT SOLID WROUGHT

Fac-Simile of Trade-Mark.



Fac-Simile of Green Label.

By Royal Letters Patent.
V. R.
PETER WRIGHT'S
SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE BICK FACE AND END ALL IN ONE SOLID PIECE!

The high reputation attained by these Anvils has led makers of an inferior anvil to imitate the brand, with the view of thereby more readily marketing their goods. You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other; fac-similes of both are shown above.

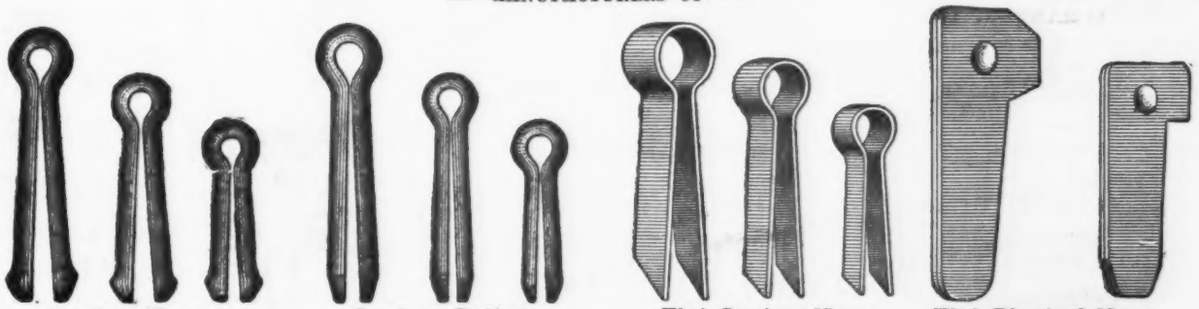
☞ ***These celebrated Anvils may be obtained from all the principal Hardware Dealers.***

FACTORIES AT
AKRON, - OHIO.
CANTON, - OHIO.

The Whitman & Barnes Mfg. Co.

FACTORIES AT
SYRACUSE, - N. Y.
ST. CATHARINES, ONT.

——MANUFACTURERS OF——



Spring Keys. Spring Cotters. Flat Spring Keys. Flat Riveted Keys.

BRANCHES AT
79, 85 W. Monroe Street, CHICAGO, ILL.
1324 West 11th Street, KANSAS CITY, MO.
126 Main Street, CINCINNATI, OHIO.

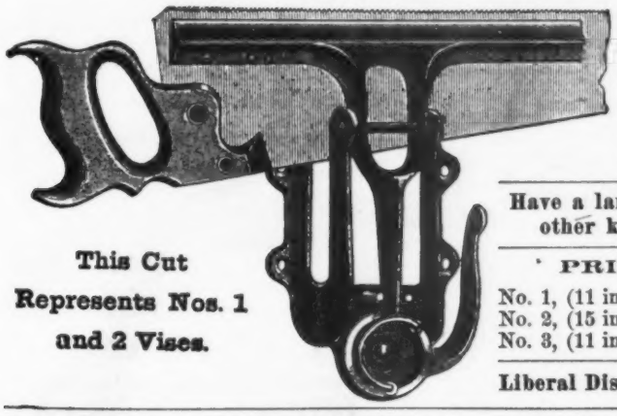


Cellar Box Cotters.

BRANCHES AT
32 So. Market Street, BOSTON, MASS.
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Wentworth's Patent Noiseless Saw Vises,

WITH RUBBER CUSHIONED JAWS,



This Cut Represents Nos. 1 and 2 Vises.

Prevent all vibration and render Saw Filing Noiseless.

Will make no more noise than filing on a solid piece of Iron.

Have a larger sale than all other kinds combined.

PRICE LIST.

	PER DOZ.
No. 1, (11 inch Jaws), -	$15.00
No. 2, (15 inch Jaws), -	21.00
No. 3, (11 inch Jaws), -	18.00

Liberal Discount to the Trade.



No. 3 Vise.

LONGEST JAWS, HEAVIEST AND BEST FINISHED.

Sold by all the Leading Jobbers of General Hardware at Factory Prices.

MANUFACTURED BY

SENECA FALLS MFG. CO., 255 Water St., Seneca Falls, N. Y.

Cronk's Patent Wire Cutter and Bender.

This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is specially adapted to farmers' use in building Wire Fence, &c.

Our reasons for claiming that we have the best Pliers in the market are:

FIRST.—We use the best Tool Steel and they are nicely finished.

SECOND.—We combine both Flat and Round-Nosed Pliers in one, the concave and convex circles between the handles are used for bending wire in any desired shape.

THIRD.—The cupping in the Nose is used for pulling tacks, brads or nails, and can also be used in place of Hill's Hog Ringer.

FOURTH.—We can cut Barb Wire, Barb Belt or any kind of Wire used for Fencing purposes. We also claim that we have the only Plier made that the Cutting Jaws cannot be broken.

By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.



8 in. per doz. pair, $15.00
10 in. " " 21.00

CRONK HANGER CO., Elmira, N. Y.

SURPLESS, DUNN & ALDER, General Agents. - - 97 Chambers St. and 79 Reade St., New York.

Drills for Wood & Metal, Countersinks, Screw Drivers, Chucks, &c., for sale by the trade.

Syracuse Twist Drill Company,



SYRACUSE, N. Y.

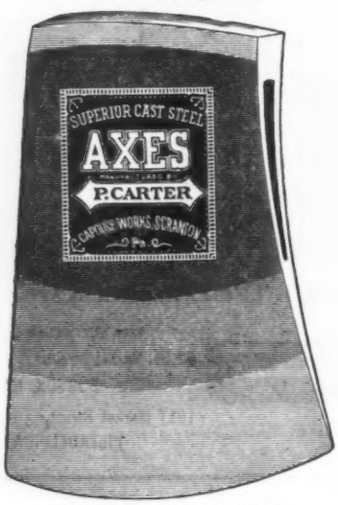
Every tool fully Guaranteed. Beware of imitations.

TRADE SYRACUSE T.D. CO. MARK.

Established 1841.

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SCRANTON, PA.



MANUFACTURERS OF

MINING TOOLS

AND ALL PATTERNS OF

CHOPPING AXES.

Send for Prices.

SNELL MANUFACTURING CO., 72 Reade St., New York,

MANUFACTURERS OF

Ship Augers, Auger Bits, Boring Machines and Boring Implements.

ESTABLISHED 1790.

FIRST PREMIUM AWARDS: Mass., 1841, 1848, 1850; International Ex., Paris 1878; Centennial Ex., Phila., 1876

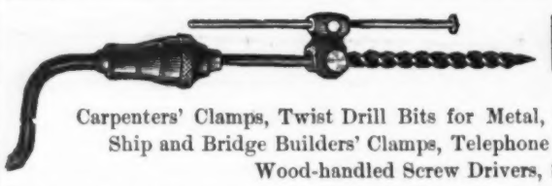


Manufacturers of Car Bits, Jennings' Pattern Auger Bits, Boring Machine Augers, Carpenters' Augers, Mill Augers, Rafting Augers, Gimlets and Gimlet Bits, and Screw-driver Bits.

All Kinds of Machine Bits Made to Order.

All Goods made of the Best Quality of Cast Steel and Warranted. First Premium Medals taken for Superior Quality and Excellence of Finish.

Factory, - - - Fiskdale, Mass.



BIT GAUGES.

MANUFACTURERS OF

Carpenters' Clamps, Twist Drill Bits for Metal, Twist Drill Bits for Wood, Ship and Bridge Builders' Clamps, Telephone Bits, Machinists' Clamps, Wood-handled Screw Drivers, Saw Vises.

THE CINCINNATI TOOL COMPANY, - Cincinnati, Ohio, U. S. A.

FRAY'S RATCHET BRACE.

Patented Dec. 25, '88, and Jan. 8, '89.

Price lists and catalogues on application.

Nickel-Plated, with Cocobolo Handle, Lignum Vitae Head.

No. 81— 8-in. sweep, $33 per doz
No. 101—10-in. sweep, 36 "
No. 121—12-in. sweep, 39 "
No. 141—14-in. sweep, 42 "

Plain finished, with Black Enameled Head.

No. 82— 8-in. sweep, $17 per doz
No. 102—10-in. sweep, 18 "
No. 122—12-in. sweep, 20
No. 142—14-in. sweep, 22



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Star Brand

—AND—

Trade-Mark.

DIAMOND BRAND

TRADE MARK.

Reversible, Ball-Bearing and other Improved

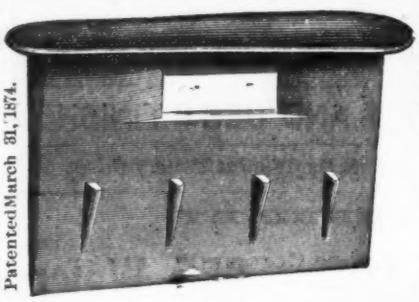
CLIPPERS

For Horsemen and Barbers.
27 Patterns. Latest improvements.
Finest Quality.

Jesse Lee & Sons,

Sole agents for manufacturers and patentees,

37 South Fourth St, - PHILADELPHIA.



Patented March 31, 1874.

BEWARE.

Several styles of axe wedges have been put on the market the past year or two, all of which, so far as I know, are infringements of my patent. *All parties are hereby warned* against selling or using such wedges. One suit has been settled in my favor, another settled without suit, and other parties will be called to account soon. I still manufacture and sell the above, which has more practical merit than any other thus far made.

F. V. WOOSTER

66 Beverly St., - - Boston.

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THE World's Headquarters FOR



BLUE-STONE, SCYTHE-STONE,



WHETSTONES, OIL-STONES, RAZOR HONES,

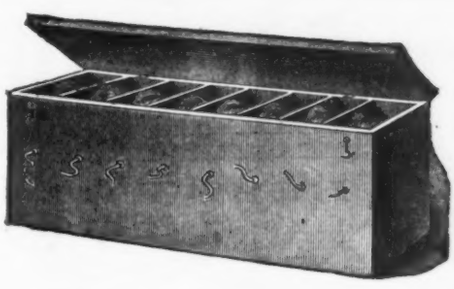


AND EVERY THING FOR

SHARPENING

EDGE-TOOLS.

If you **want the best Scythe-stones** buy the following celebrated brands:—The **"Indian Pond Red Ends,"** which have been made for about 70 years, and the sale of them extends to-day all over the world, and the demand for this stone exceeds all others. They are quick cutting, strong and do not glaze. The **"Lamoille Scythe-stone"** is also well-known, and has the reputation of being the best stone in the world to give a keen, smooth edge. The **"Black Diamond Scythe-stone"** is of the same grit, but superior finish, and is the handsomest scythe-stone in the market. The **"Ragg," "Willoughby Lake." "Green Mountain," "Diamond Grit," "White Mountain," "Farmer's Choice,"** and **"Extra Quinnebaug"** are all choice stone, coming from the best quarries which have been discovered in long years of effort and experience. These stones are carefully selected and handsomely packed and are sure to sell with satisfaction and profit.



THIS is our Patent Spool Box and is indispensable to the retailer. It contains eight sizes of wire picture cord, of any kind desired, on spools of 100 yds. each. Any length may be measured and spools can be replenished at any time. The cord is sold at regular market prices and the box is Gratis. Write for catalogue.

TATE & CO., - Malden, Mass.

MANUFACTURERS OF

Wire Picture Cord, Wire and Cotton Sash Cord and Clothes Line, Spooled Wire in Iron, Brass and Copper.



P. J. CONROY & CO.
Paschall, Philadelphia.

—THE—

"Conroy" Refrigerator Door Fasteners.

LIGHT BRASS CASTINGS

Pat. Dec. 15, '85. MADE TO ORDER.

MADE OF WOOD JESSE JONES & Co.

HARDWARE SHELF BOXES

NO SCREWS OR NAILS USED TO WORK. CUT AND CUT YOUR SHELVING

615 COMMERCE ST. PHILA.

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The NEW PATENT CAN for LE PAGE'S GLUE

EVERYBODY APPRECIATES IT.

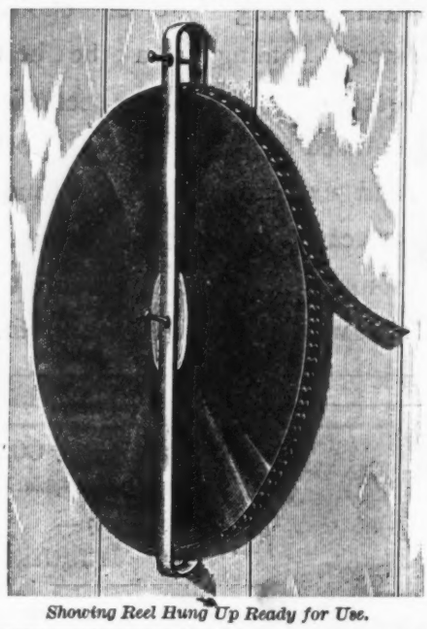
NO MORE SWEARING ABOUT TOPS THAT WONT UNSCREW.

ALWAYS GET THE BEST



These patent cans are furnished only with *the Genuine* LE PAGE'S GLUE, manufactured by the **RUSSIA CEMENT COMPANY** Gloucester, Mass., U. S. A. New York Office, 95 Reade St. and 113, Chambers St. Pacific Coast Office, 23 Davis St., San Francisco, Cal.

CARY'S UNIVERSAL METAL STRAP.



Showing Reel Hung Up Ready for Use.

A SUBSTITUTE for STRAP IRON, Wood Straps, Wire and other material

Used for binding Packing Cases,

—ETC.—

A CONTINUOUS METAL STRAP

—PUT UP IN—

Coils of 300 Feet in Length,

AND PACKED IN

Cases Containing 20 Reels Each

Made in different Widths and Gauges.

Six U. S. Patents on Bands, Joints and Reels. Patented in the Principal Foreign Countries.

Manufactured by the CARY MANUFACTURING CO. 41 & 43 Centre St., N. Y.

LABOR SAVING



NO EQUAL ON EARTH.

Illustrated price list on application.

Discount on application.

Forstner Auger Bit.

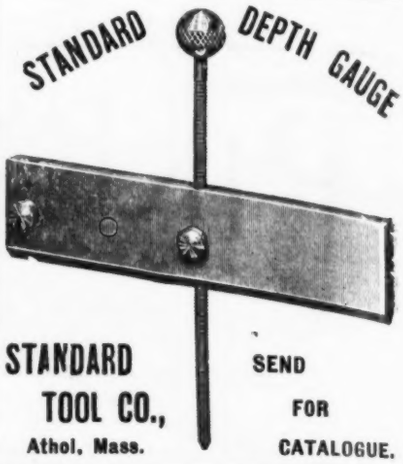
Boring Smooth, Round, Oval and Square Holes, Mortising, etc.

Invaluable to carpenters, cabinet and pattern makers. Send **$8.25** for a set (3 8 to 11-8) in fine cloth case, or **50 cts.** for 4-8 sample, mailed free.

Highest Awards, American Institute, N. Y., 1885-6-7

THE BRIDGEPORT GUN IMPLEMENT CO., 19 Maiden Lane, N. Y.

STANDARD DEPTH GAUGE



STANDARD TOOL CO.,

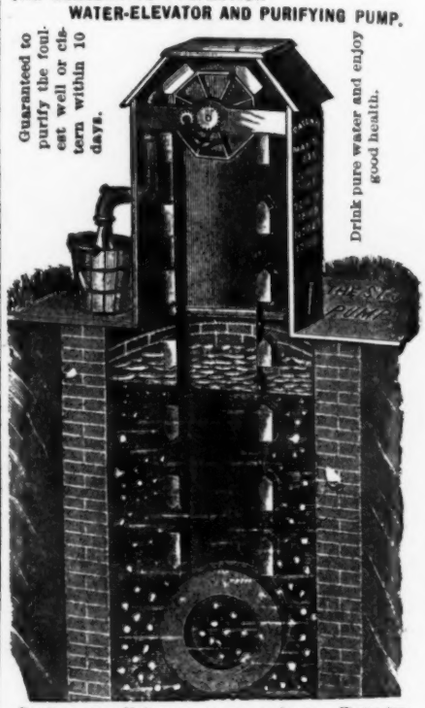
Athol, Mass.

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Drink pure water and enjoy good health.



Dealers, we solicit your correspondence. Write for our circulars and price list. Address **THE ST. JOSEPH PUMP CO.,** St. Joseph, Mo U. S. A

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SUCCESSOR TO

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Manufacture

Belt Hooks

Cotters,

Spring Keys,

D Rings,

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and everything pertaining to wire bending.

Practical Electrical Measurement.

(55 Illustrations).

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LIGHT YOUR DARK SHOPS CHEAPLY.

Give your men plenty of Light and they will do double work.



The Wall Torch has been used for several years as a means of illumination in **Mills, Foundries, Machine and Car Shops, Tunnels, Street Stands, Band Stands, Smith Shops,** etc.

While there are many cheap, inferior torches made which injure the sale of a good article, and condemn the **Torch** in general, our "Incandescent" Wall Torches are recognized as the best, and are now in use in the largest manufacturing establishments in the country giving **PERFECT SATISFACTION**, as is evidenced by the **DUPLICATE ORDERS** we receive from year to year.

They burn 150° Coal Oil, or 74° Naphtha, requiring a different burner for each.

In ordering be careful to state which is desired.

Price, for Single Torch, complete, $2 each.

SPECIAL PRICE QUOTED FOR QUANTITIES.

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100 to 118 Perkins Ave., - - - - Cleveland, Ohio.





RELIABLE

Torches,
Furnaces,
Paint Burners.

TORCHES to burn Gasoline and Oil. **500,000 in use.** Not affected by wind or weather.

GASOLINE FURNACES for plumbers' and tinners' use. Powerful flame. Removable melting pot. Wind does not affect them.

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SOLE MAKERS

The Schneider & Trenkamp Co.

Cleveland, O.



It has no equal for hard service. The reinforced piece stiffens the back and braces the ends.

FINE TOOLS FOR MECHANICS.



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☞ Send two-cent stamp for full list.

☞ An auxiliary locking nut between the arms in this Divider is valuable. After the fine spring adjustment has been made it may be turned back, forcing a spiral spring inside the arm, locking it firmly.

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Manufacturers of all kinds of

Iron Pumps,

Pitcher,
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Satisfaction guaranteed.
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MANUFACTURED BY

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WRITE FOR PRICES AND CIRCULARS.

SPECIAL AGENTS WANTED IN EVERY TOWN.

STATE RIGHTS FOR SALE.





Standard Coat & Hat Hook.

Rolled Thread, Flat Tip.

Hardware Specialties and Standard Wire Goods of every description.

Automatic Machinery and Special Tools made to order.

Hamblin & Russell Mfg. Co.,

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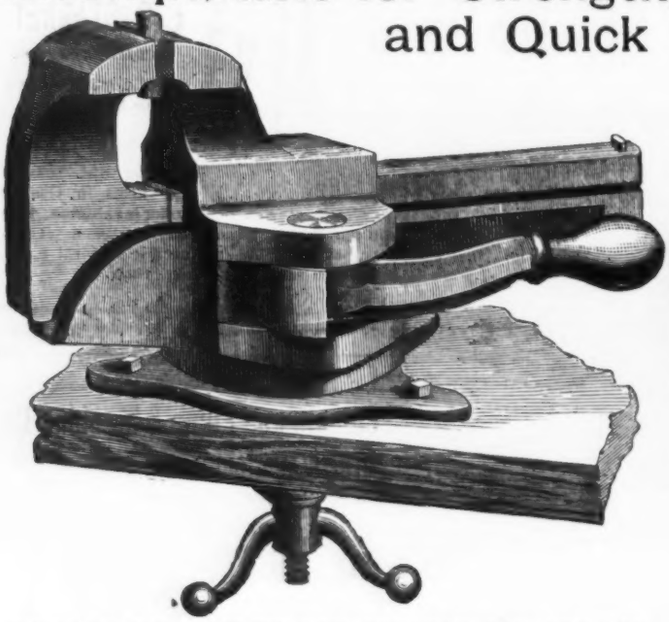
U. S. PATENTS.
Oct. 11, 1875.
Oct. 7, 1884.
Nov. 10, 1887.
Dec. 13, 1887.
Sept. 18, 1888.
July 30, 1889.
Sept. 17, 1889.

Catalogue and Samples on Application.

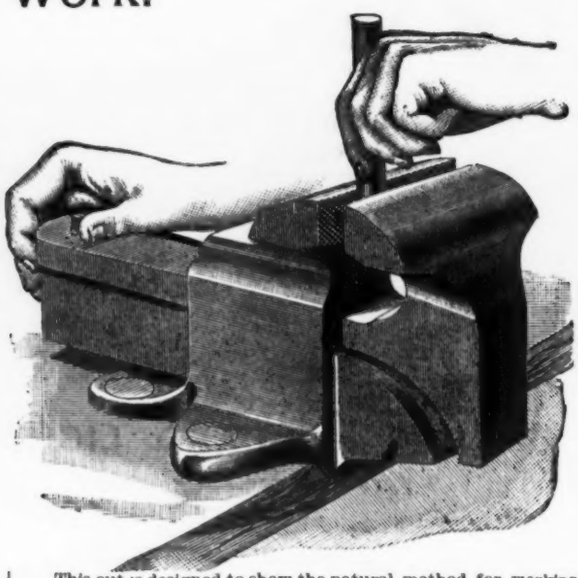
STEPHENS' PATENT VISES.

Quick Adjusting Cam and Toggle-Joint. Stationary or Patent Swivel Bases.

Incomparable for Strength, Durability, Firm-Hold and Quick Work.



Made both in FLAT and SWIVEL in 2 in., 2¾ in., 3½ in., 4½ in., 5½ in., 6½ in. width of Jaw.



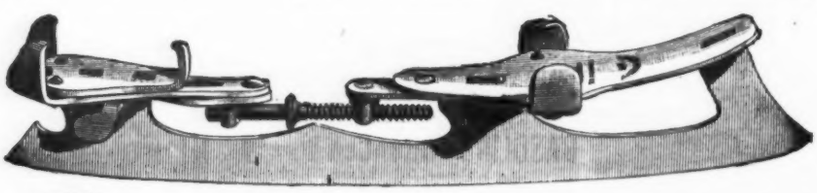
This cut is designed to show the natural method for working this vise and the EASE and FACILITY with which it is *opened* and *closed*.

ALSO TAPER JAWS, PIPE GRIPS AND OTHER ATTACHMENTS.

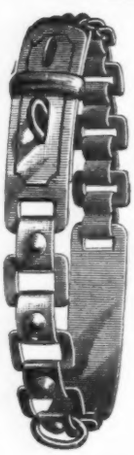
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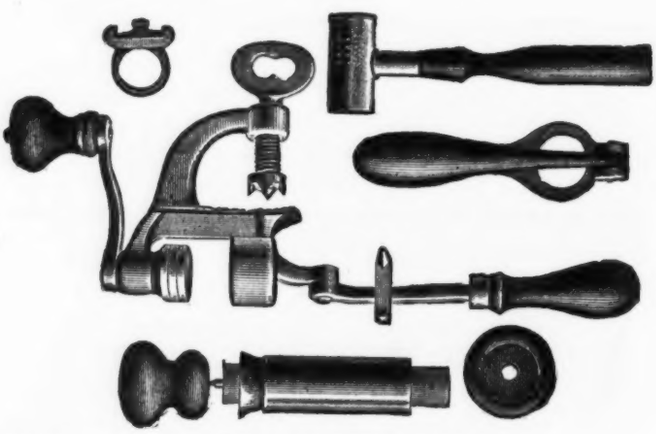


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Gun Implements.

A complete line, best quality and finest finish.



NEW AND COMPLETE LINE PATENT OVAL EDGE TACKLE BLOCKS.

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Torrington, Conn.

NEW YORK OFFICE in charge of TOWER & LYON.

The Le Page Company's Improved Process Liquid Fish Glues.



Be sure the vignette and signature of WM. N. LE PAGE are on every package.

WM. N. LE PAGE is the original inventor of Preserved Liquid Fish Glue, and of the New and Improved Process by which this glue is manufactured, producing the finest, clearest and strongest glue in use.

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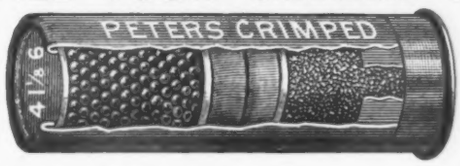


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EMPTY.

HANDSOME, WATERPROOF, STRONG, SURE PRIMERS.

Dealers say "The Prize" is most satisfactory.



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STRONG, CLEAN, RELIABLE.

Price-Lists and Discounts to the Trade.

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Protection Against Fire!

The most simple and durable in the market. Warranted non-explosive. Always ready for use. Instantaneous in operation. Can be recharged for 10 cents in less than 5 minutes. Will extinguish over 2000 cubic feet of flame. No bottle to break, no screws to unscrew. Think of the great advantages over all other extinguishers. Write for new Catalogue.

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AGENTS WANTED. EXCLUSIVE TERRITORY GIVEN.

NOT a member of any Trust or Combination. Price subject to change without notice.

Shot, - $1.55 per bag.
Ton Lots, 1 45. "

Less 5c a bag for cash on receipt of bill.

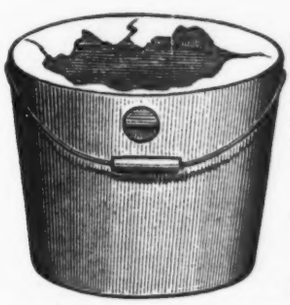
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634 Pemberton Street,

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Nov. 5th, 1890.

RICE FIRE PAIL.



No other contains its chemicals forever dry in compartments. None other mingles its chemicals in solution at the will of the operator. Ready for instant use. Cannot freeze. Cannot diminish in volume by evaporation. Cannot deteriorate with age. All insurance men approve No acid in the compartment pail. It will not affect the skin, does not injure textile goods nor alter colors. Instantly extinguishes the fiercest fire.

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THE BISHOP POKE.



The cheapest, strongest and best-selling pokes in the market. See names of different styles as quoted in price list in this paper.



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MEDALS: Philadelphia, 1876; Eskilstuna, 1878; Paris, 1878 and 1881.

Selling Agents:

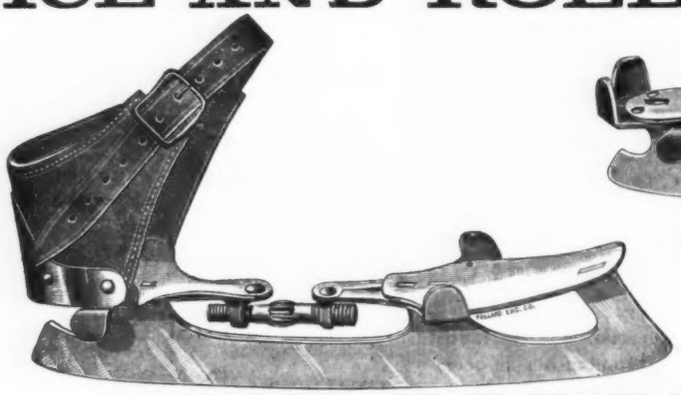
DAME, STODDARD & KENDALL,
374 Washington St., Boston, Mass.

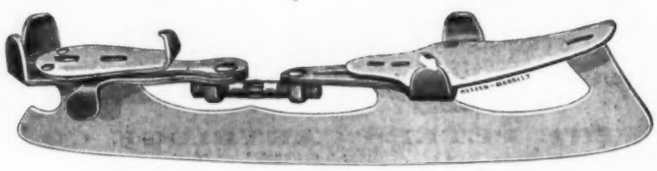
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THE SAMUEL WINSLOW SKATE MFG. CO.,

MAKERS OF

ICE AND ROLLER SKATES.



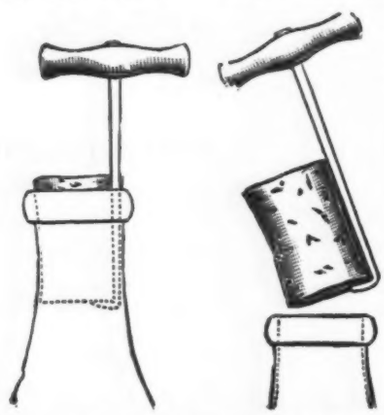


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A COMPLETE LINE OF ROLLER SKATES ALWAYS ON HAND.

WORCESTER, MASS.

Corkscrews No More.



No matter how great a pressure the stopper has been subjected to this Cork Puller will remove it unbroken with slight effort. Being constructed with an air passage it draws corks without creating a vacuum in neck of bottle.

FOR SALE BY JOBBERS.

Manufactured by

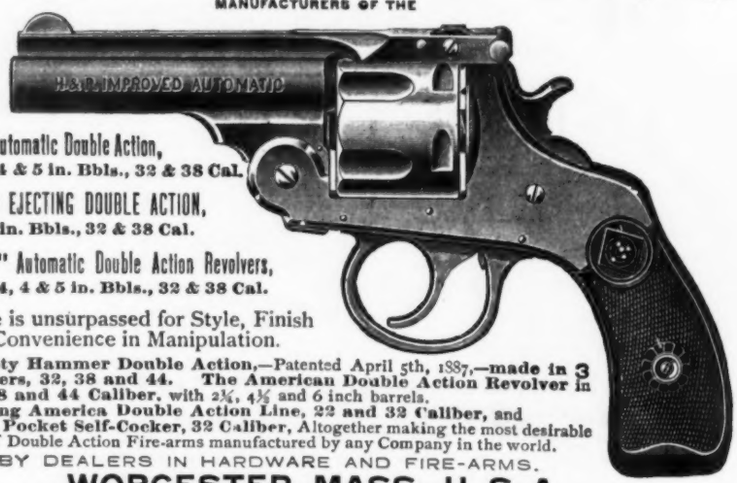
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BAGGY KNEES

POSITIVELY REMEDIED. **Greely Pant Stretcher,** by mail, 25 Cents. **Agents wanted.**
B. J. GREELY, 715 Wash. St., Boston, Mass.

Harrington & Richardson Arms Company,

MANUFACTURERS OF THE



Improved Automatic Double Action,
3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

IMPROVED EJECTING DOUBLE ACTION,
3 1-4 in. Bbls., 32 & 38 Cal.

"Premier" Automatic Double Action Revolvers,
3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

This line is unsurpassed for Style, Finish and Convenience in Manipulation.

The Safety Hammer Double Action,—Patented April 5th, 1887,—**made in 3 Calibers, 32, 38 and 44. The American Double Action Revolver** in 32, 38 and 44 Caliber, with 2¼, 4½ and 6 inch barrels.
The Young America Double Action Line, 22 and 32 Caliber, and
The Vest Pocket Self-Cocker, 32 Caliber, Altogether making the most desirable line of Double Action Fire-arms manufactured by any Company in the world.

SOLD BY DEALERS IN HARDWARE AND FIRE-ARMS.

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FIRE DEPARTMENT SUPPLIES
Fire Axes, Fire Buckets,
Rubber, Leather, Cotton and Linen Hose
JOHN H. CLAY, Manufacturer,
1320 Ridge Avenue, Philadelphia.
Mills and Cities Fitted up with Fire Service.

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Send ten cents to cover postage for our new illustrated Catalogue in nine colors.



FIG. 1.

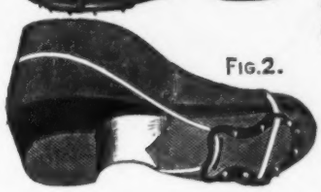


FIG. 2.

ARCTIC ICE DOGS.

These Ice Dogs or Creepers, designed to secure safe-footing on slippery pavements, are the simplest and best ever invented. They consist of a very light, malleable casting of the best quality of iron, fitted for the sole of the shoe and fastened to the foot by means of a toe-strap and an endless elastic band drawn high over the heel, thus holding the dog to its place, and being easy of adjustment, is very quickly put on or taken off.

There are two sizes, for ladies and gentlemen respectively, and the peculiar adjustment attaches them equally well to boots, shoes or rubbers, without difficulty or delay.

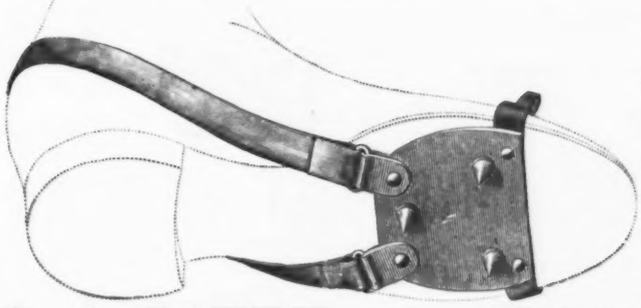
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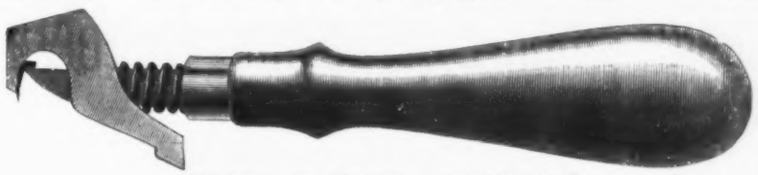
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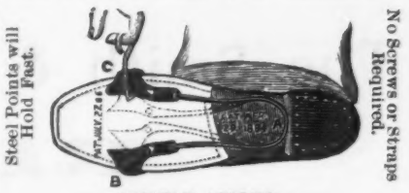
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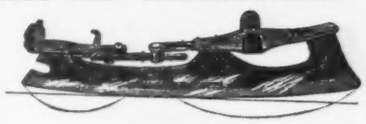
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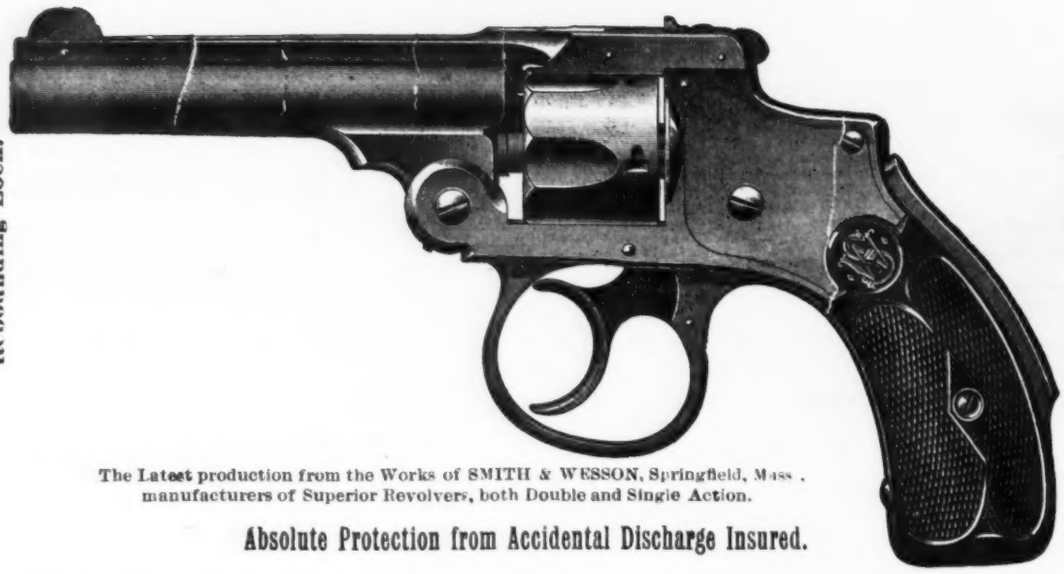
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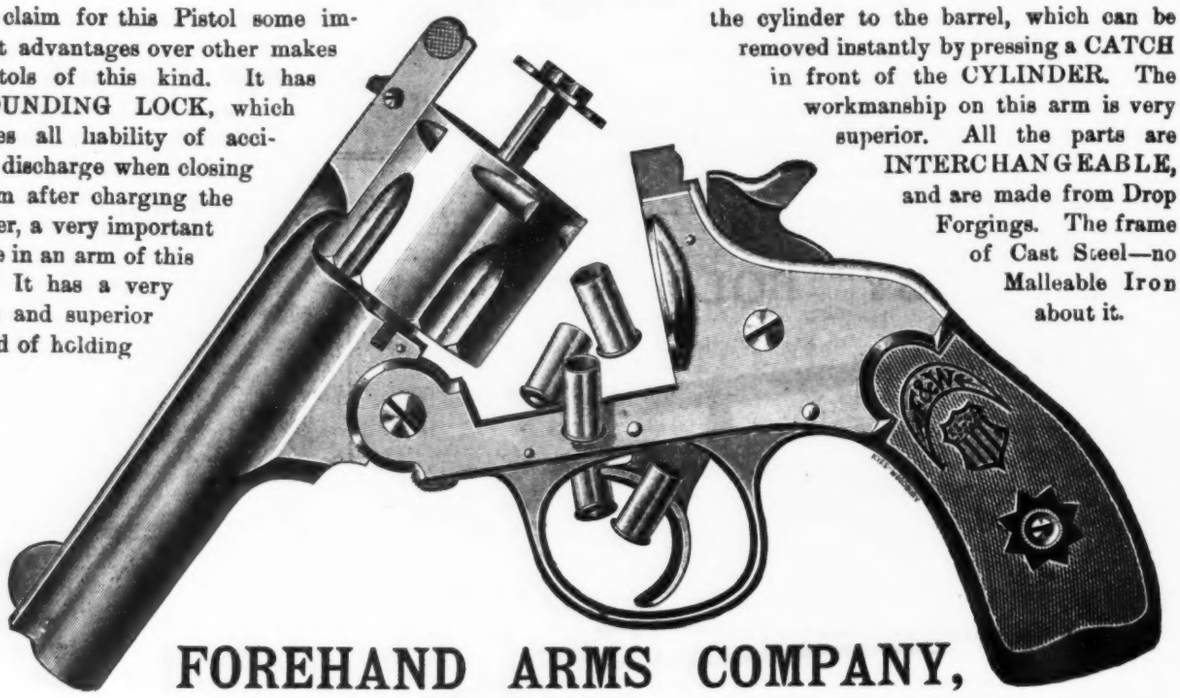
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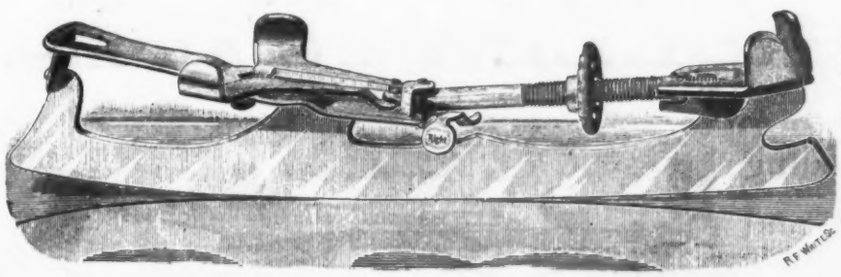


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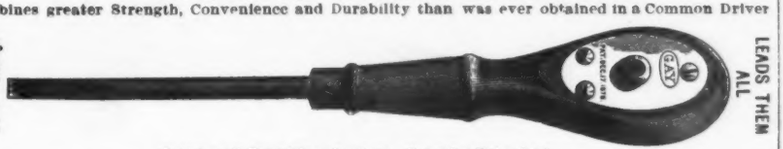
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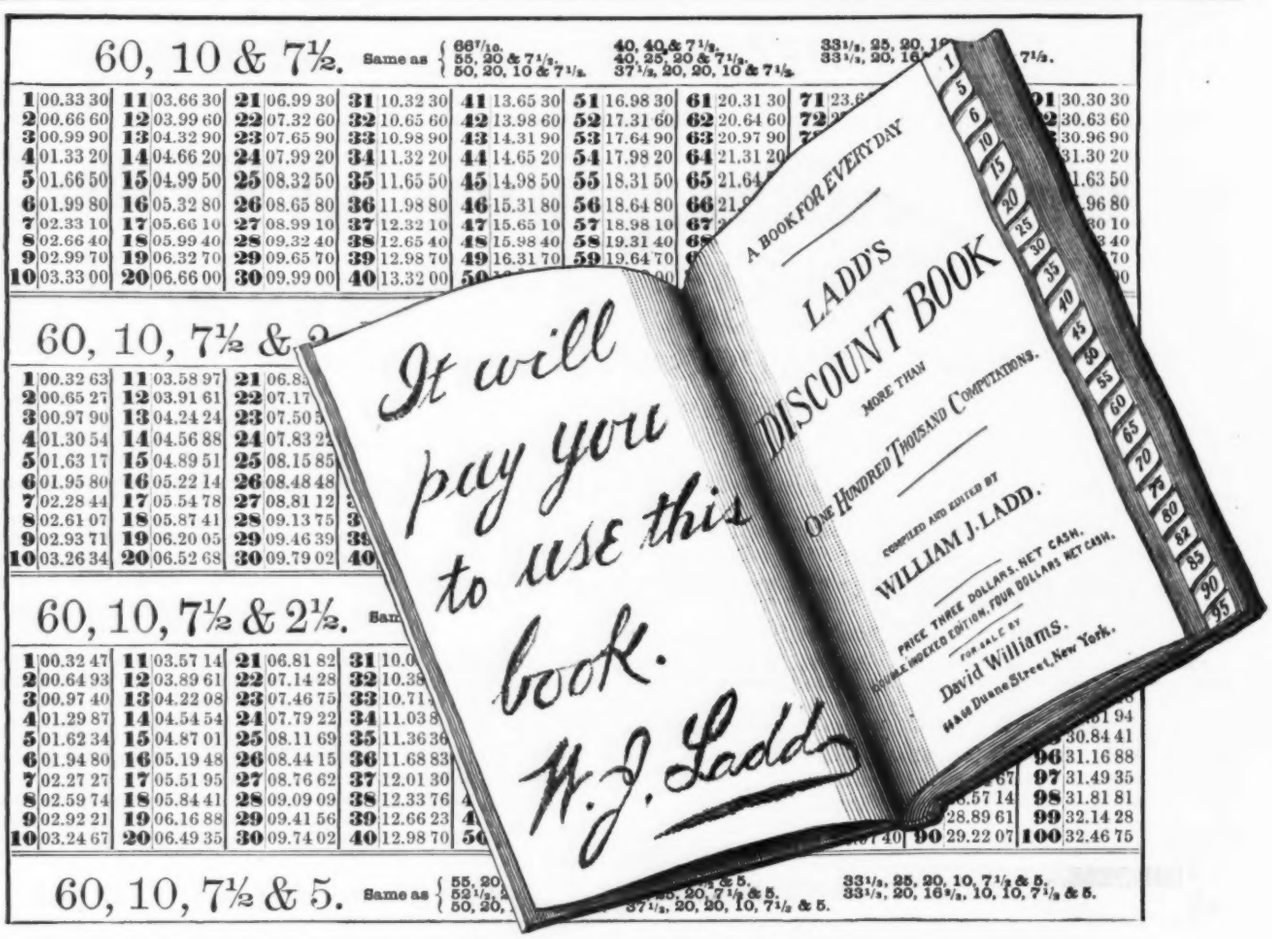
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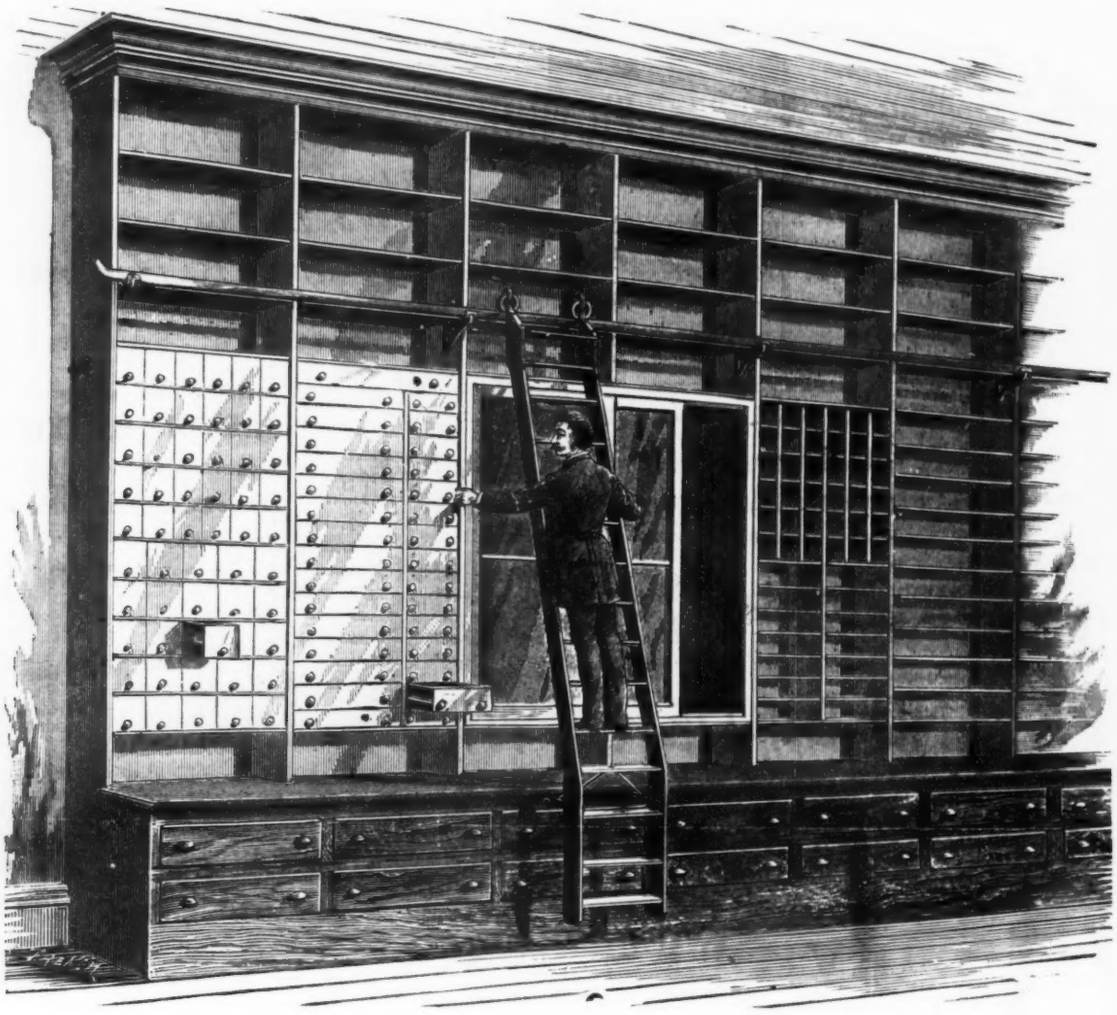
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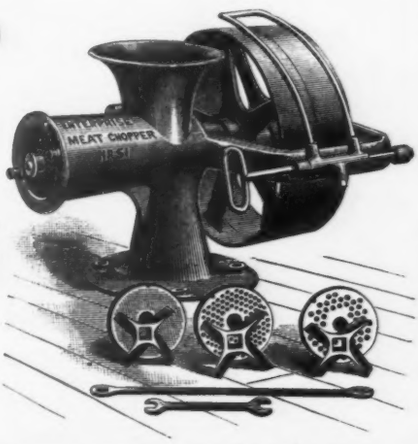
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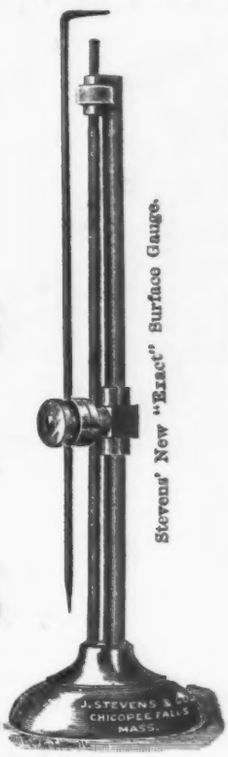
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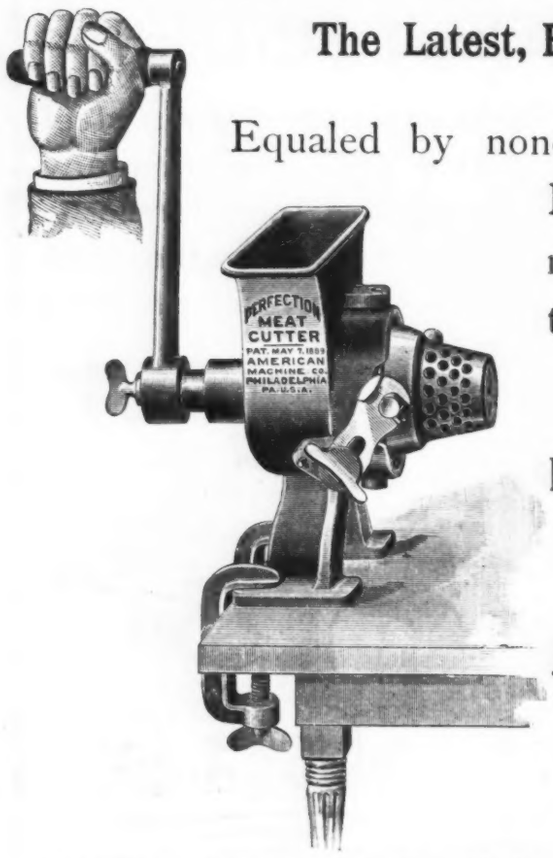
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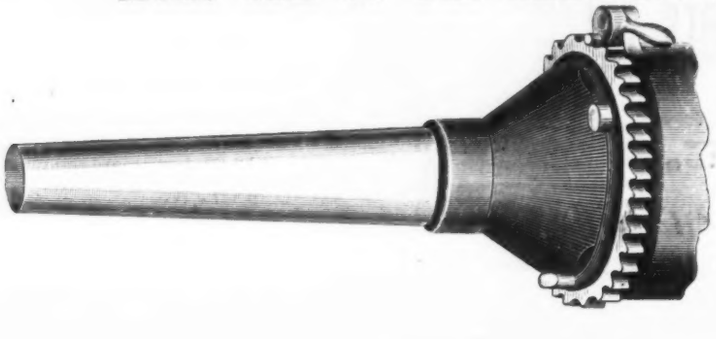
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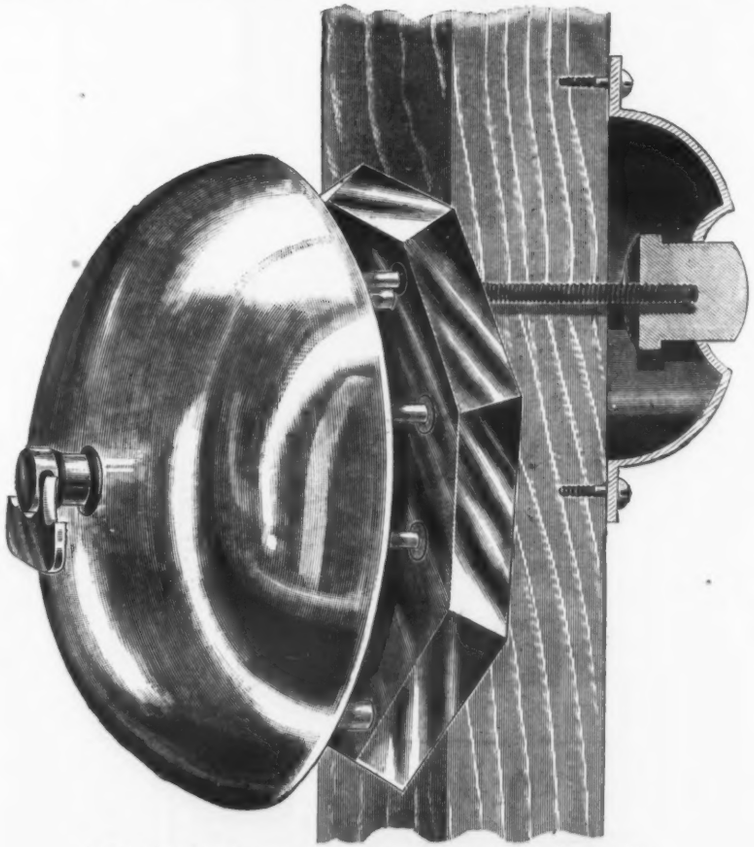
Meat can be Cut and Stuffed in one operation.



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Busby's Latest and New Improved Push Button Bell.

The Cheapest, Handsomest and most Thorough Made Bell on the Market.

Nos. 10 and 11.

They have *negative movements*, that is, are required to be *wound up*. There is *no defacing them when winding them*, as the *only part* that is *touched* is the *arbor key* on *end of winding arbor*. They have *merits never before brought forth in a mechanical push button bell*, viz. : *Full power* is given over *all "lost motion"* or *"back slack"* by an adjustable push rod. All *master craftsmen* will appreciate this, as they are aware *lost motion* will occur unless there is a way to *obviate it*. There is *no dropping out of push rod or losing push button* when the bell hanger or carpenter is *putting them up*, as *each is secured by a thread cut at each end of push rod*. There are *no spiral springs* about them, no *twisting off thread* on *end of arbor* or breaking of *springs*. They have *no wire "pinion" geers to come apart*. All our *"pinion" geers* are *solid steel*. There is *no straightening* of *Push Rods*, saving *valuable time* to *Carpenter* and *Bell Hanger*.

Our Nos. **1, 2, 10** and **11 Bells** are **Negative Bells**, *i. e.*, they **have to be wound up.** They **can be used on the door,** on the **side** of **the casing** of **the door, over the door** or **in the distance,** but we **advise** the **public not to be deceived** in the **use of a Negative Bell** for **heigth** or **distance,** *i. e.*, a **bell** that **that has to be wound up,** for our experience of many years (as we are no juveniles) in the bell business has **taught us** that a **bell** that **winds up** is **only fit for local use,** for if **put out** of **reach** and **stools** or **step-ladders are used** in **order** to **get at them** to **wind them up** when **run down,** and **they are apt to be so when most needed, they become a nuisance rather than a comfort or pleasure.** The **only bells** of **our make we would recommend** for **distance** are **our perpetual or positive movement bells,** which are Nos **5, 6 and 8.** These **never require any attention after once properly hung** and **can be used any distance.** There is **no winding to them.** They are the only reliable positive movement spring bells on the market; they have no double back action or spiral springs about them and never miss an alarm.

We believe in **dealing** in **facts with the trade** rather than putting **trash goods** on the **market** and **impose on the public** for the **sole purpose** of **gain** rather than **presenting merits** and **first-class goods.**

Our **aim** will **always be** to **give the best that skilled craftsmen can bring forth.**

Before getting **LOADED** with **Table Bells** wait until you have seen the **latest** and **best,** one **that gives** the **"electric" sound** and **does not have to be wound up.** There is **no tarnishing them** or the **nuisance** of **having** to **wind them,** as they are **positive** or **perpetual motion bells.**

Our U. S. Patents date Nov. 2, '86, April 12, '87, March 12, '89. Trade-Mark granted Oct. 19, '86. Foreign Patents Sep. 21, '86, Dec. 6, '86. July 18, '87. All of our Patents are of our own brains and Production not BOUGHT ONES or WARMED OVER "CHESTNUTS."

Western Depot:

HIBBARD, SPENCER, BARTLETT & CO.

CHICAGO, ILL.

"WHAT ARE THEY?"

They are door or Call Bells that give the same result as the Electric Bells without the use of a battery, magnet or air, avoiding all filling freezing or breaking of jars.

"HOW IS IT ACCOMPLISHED?"

Simply by a mechanical device the nearest to *perpetual motion* that has ever been found to be *practical*.

"ARE THEY DURABLE?"

They will outwear all other bells on the market, owing to their construction; they are *simple, solid, practical* and made of the *best material* and in the *best workman-like manner*. We make *no "trash goods."* They are the work of *master craftsmen*. *All our goods are warranted. Any imperfection will be made good at our expense.*

"WHAT IS THEIR COMMERCIAL VALUE?"

They cost no more than any first-class bell, and when once placed in position *that ends all expense, care or trouble*, and are not affected by heat, cold, dust or moisture.

"CAN THEY BE PUT UP ANYWHERE?"

Yes, and in any position or place, and will work with *any pull or lever. Old door pulls or levers work as well as new ones.* Old trimmings can be used without making any extra expense or defacing your doors or house in any manner. They are made in sizes from 2¼ inches and upwards to meet all demands of the trade. *They are the handsomest bells on the market.*

To comply with the wants of the trade we classify our bells as follows:

No. 1 Bell has a *negative movement* and *has to be wound up*. It has a brass bell and japan base, and can be used on the door or over it the same as No. 3 and 4 Bells are used.

No. 2 Bell has a *negative movement* same as No. 1, except it has a nickel bell and base. Used the same as No. 3 and 4.

Nos. 3 and 4 Bells are positive or perpetual movements and require no attention after placed in position. They work on centre of door with any manufacturers' Levers, old or new, and over the door with any manufacturers' Pulls, old or new.

No. 5 Bell has a *positive movement* and is for a **long or short range, no limit to distance.** This bell is brass, with japan base.

No. 6 Bell has a *positive movement* like No. 5, except it has a nickel bell and base, long or short range.

No. 7 Bell has a *positive movement* finished only in nickel and used for *hospitals and sick rooms*.

No. 8 Bell has a *positive movement*, is six inch, finished in brass. This is used for elevators mines, toboggans, double-runner sleds, &c.

No. 9 Bell is a ten inch bell, used for fire alarm in hotels, or on fire apparatus of all kinds, cable or motor cars and school houses. Made only to order.

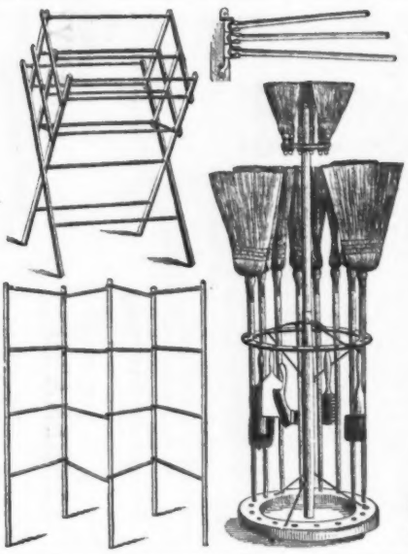
No. 10 is a *Push Bell*, japan base, brass bell and *negative movement—i. e.*, has to be wound up.

No 11 is a *Push Bell*, has a japan base, nickel bell, and a *negative movement—i. e., has to be wound up.*

No. 12 is a Bicycle Bell, finished only in nickel. The best Bicycle Bell ever put on the market. It has a *positive* or *perpetual movement.*

"EUREKA" DOOR BELL COMPANY,

86 BEVERLY ST., BOSTON, MASS.



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A. A. BARNES, Proprietor,

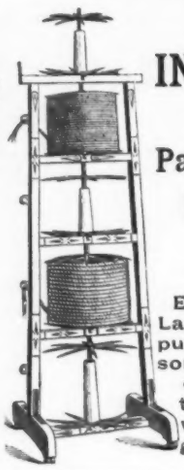
INDIANAPOLIS, - IND.,

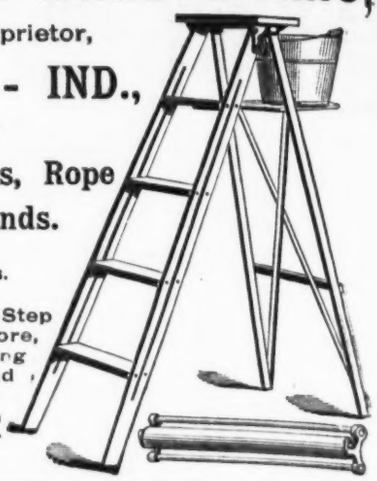
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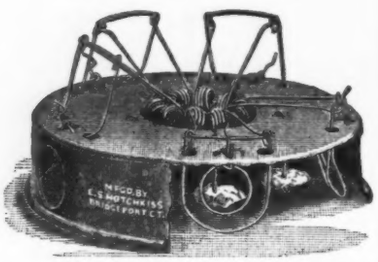
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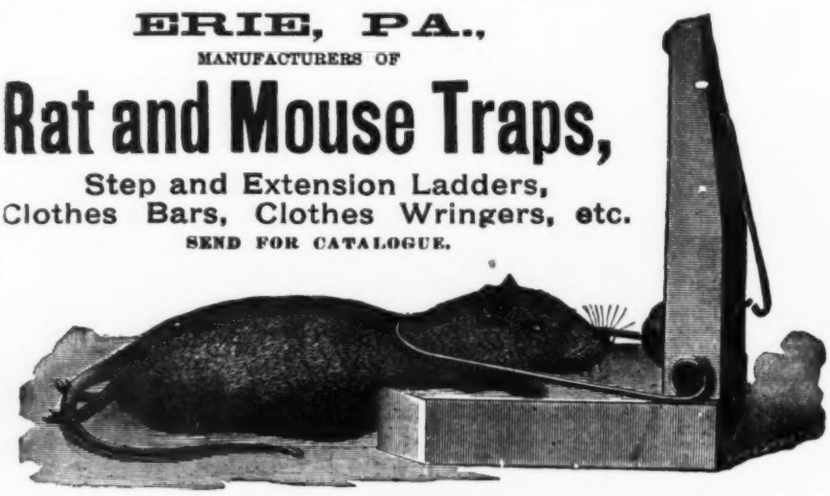
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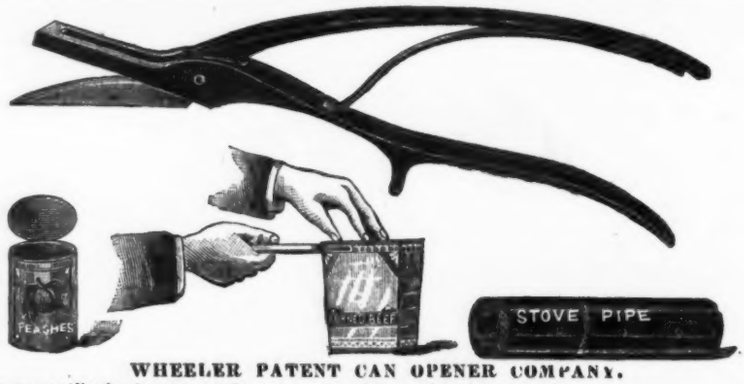
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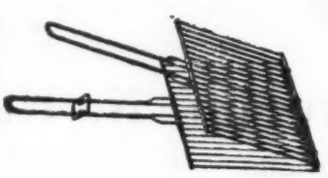
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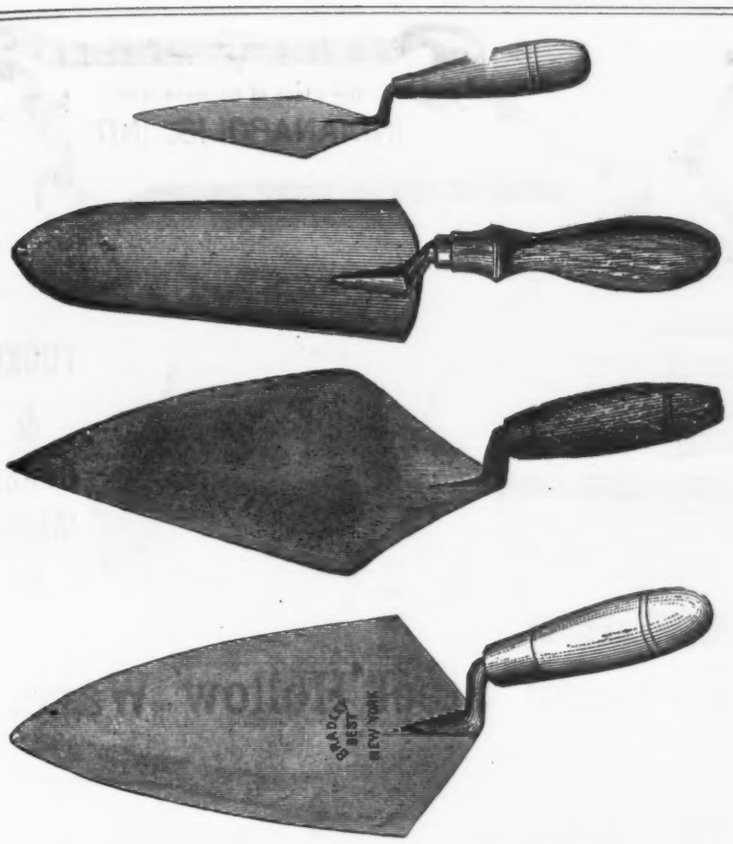
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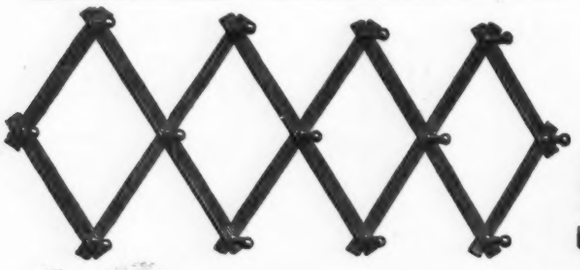
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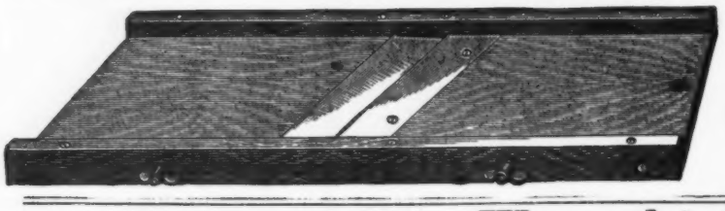
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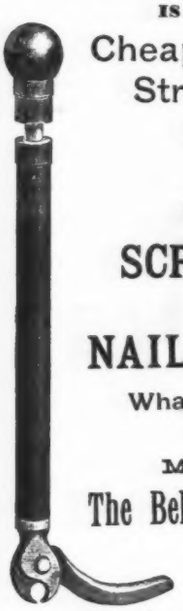
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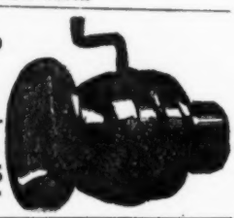
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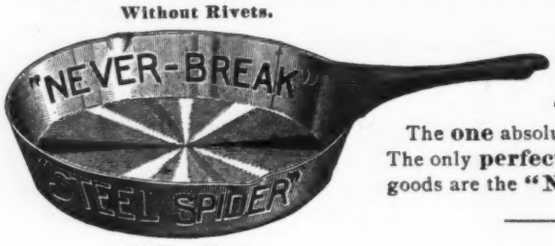
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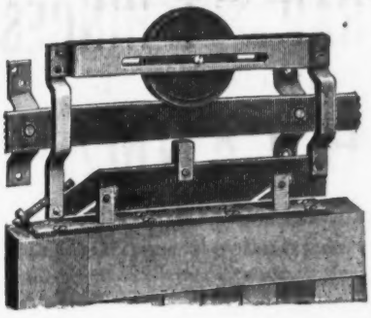
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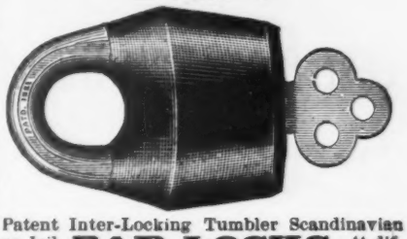
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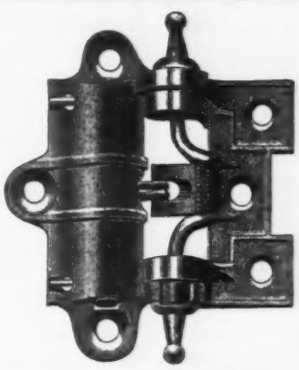


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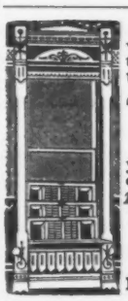


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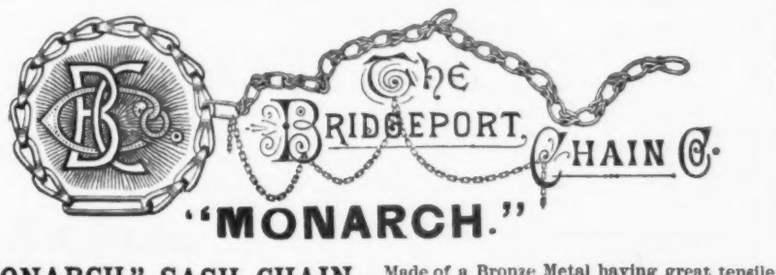
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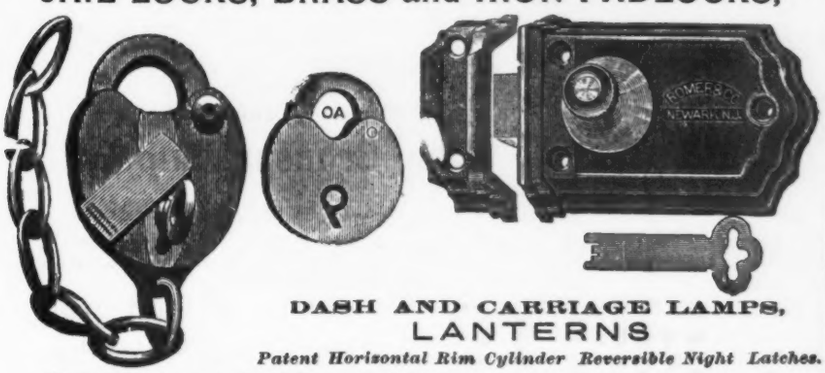


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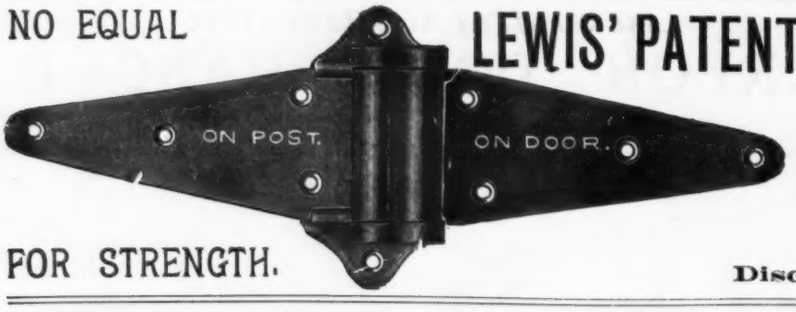
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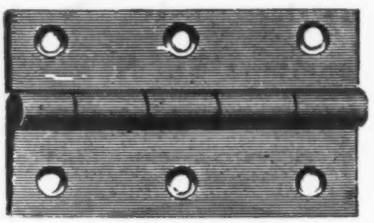
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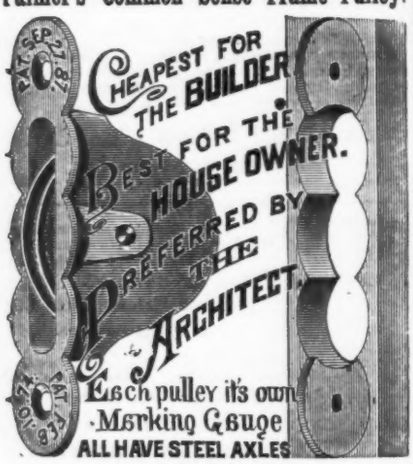
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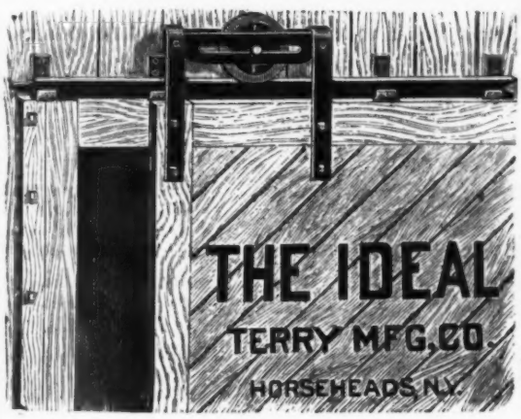


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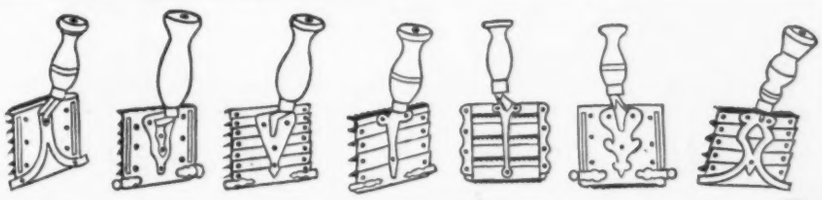
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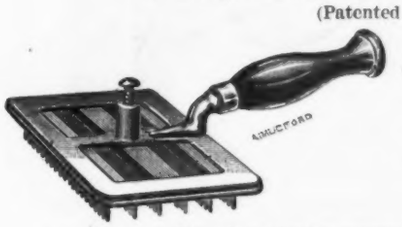
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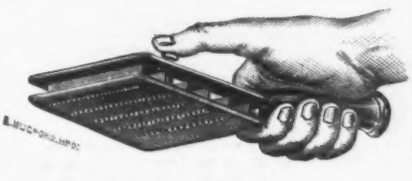
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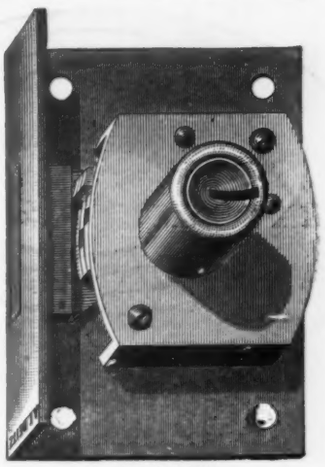


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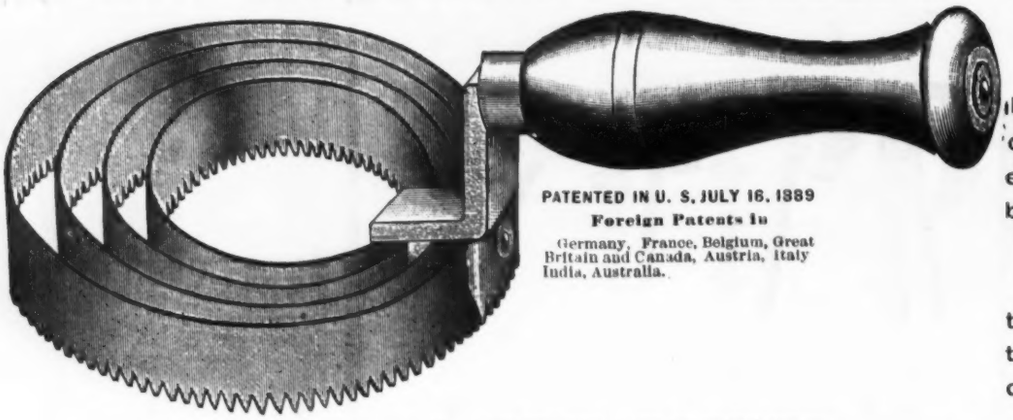


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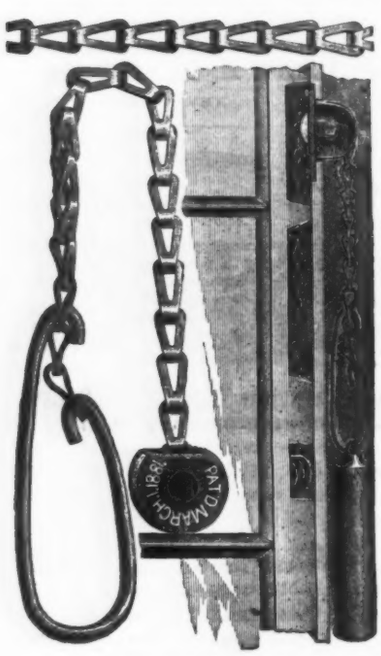
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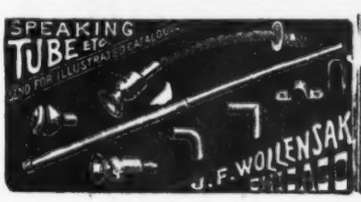


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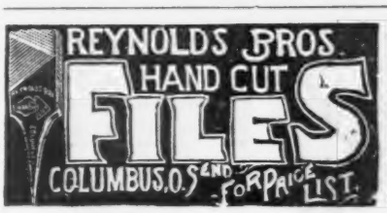


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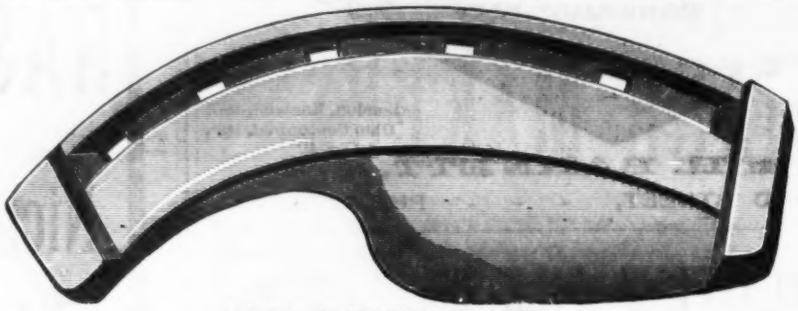
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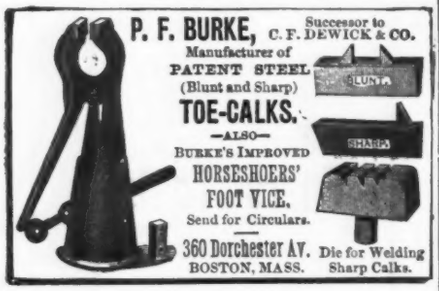
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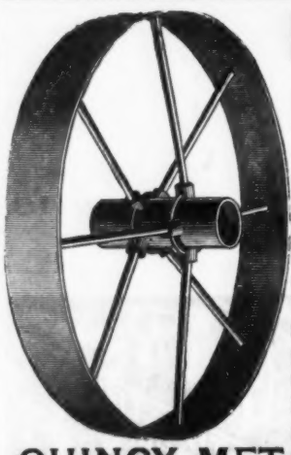
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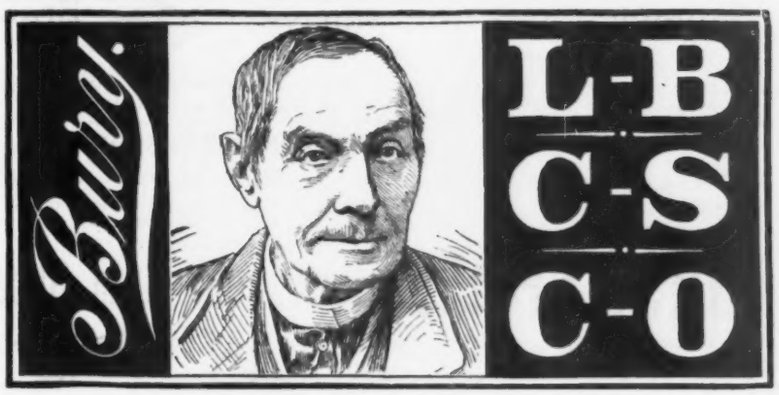
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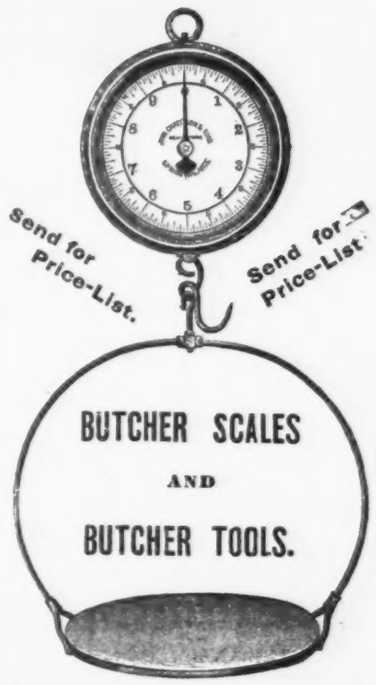
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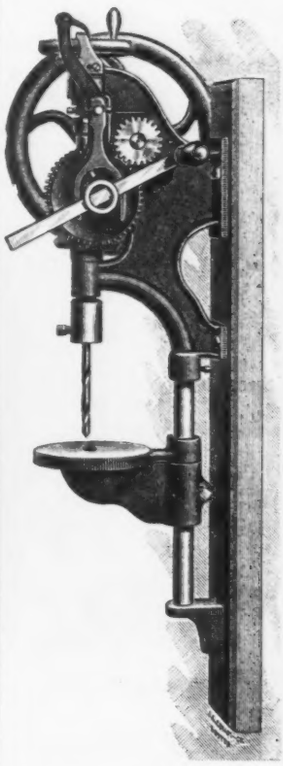
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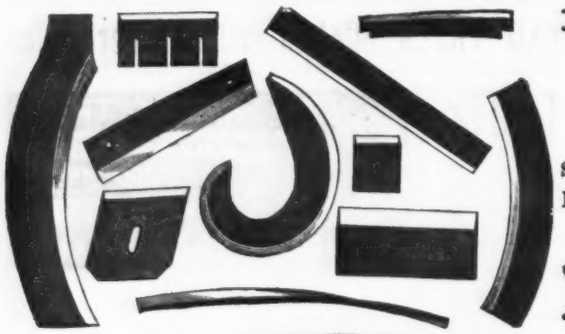
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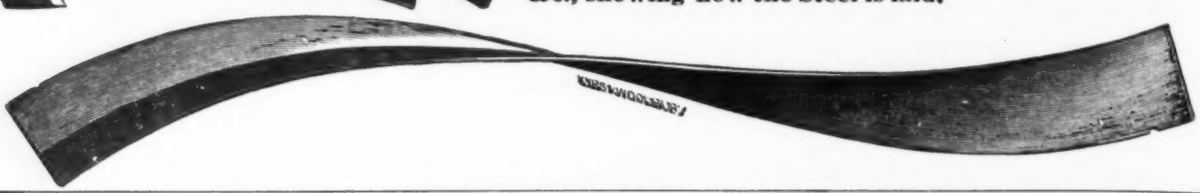
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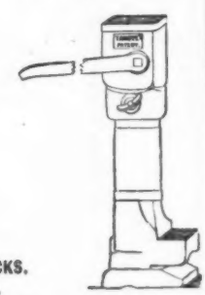
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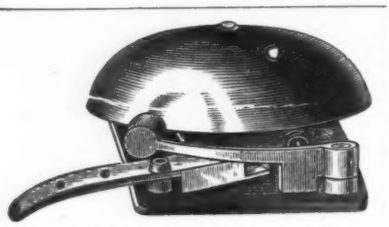


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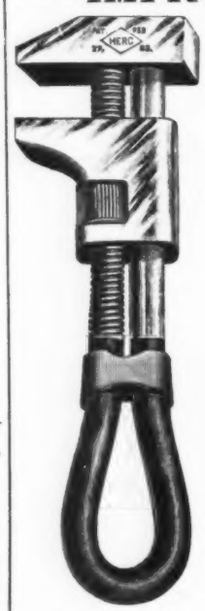
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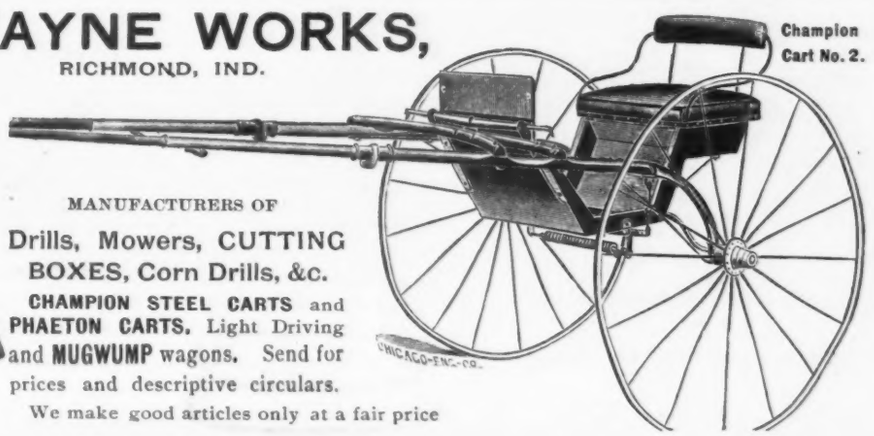
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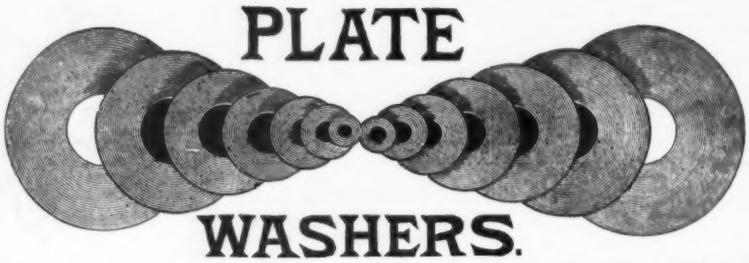
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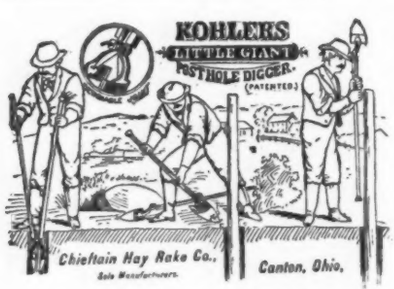
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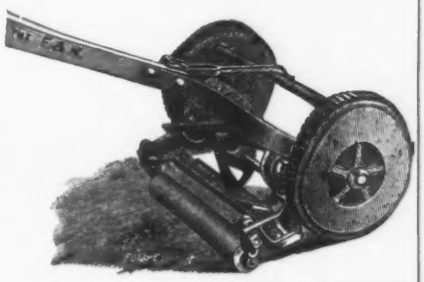
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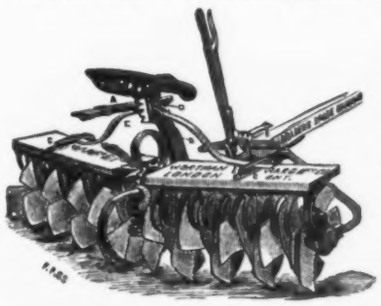


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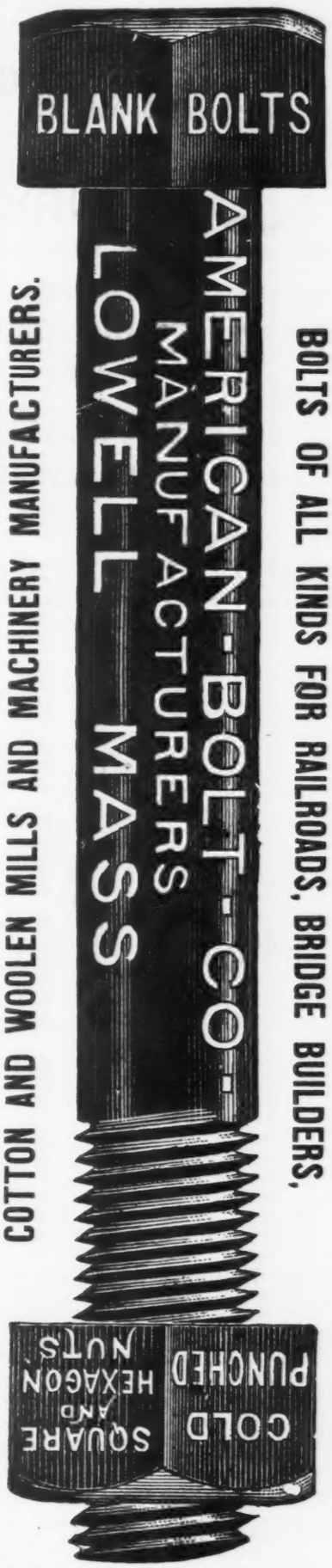
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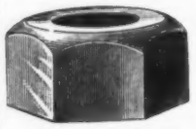
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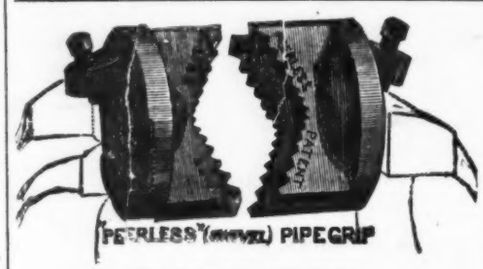
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Wilson, John, Sheffield, England.

Butts and Hinges.
Lanman, E. B., Columbus, Ohio.
Sabin Machine Co., Montpelier, Vt.
Tiebout, W. & J., 16 Chambers, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Can Openers.
Goodell Co., Antrim, N. H.
Wheeler Patent Can Opener Co., St. Louis, Mo.

Car Axles.
Roberts, A. & P. & Co., Phila.

Car Wheels.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Whitney, A. & Sons, Phila.

Carriage Hardware. *Makers of.*
Clapp, E. D. Mfg. Co., Auburn, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe, Birmingham, Conn.

Castings, Iron and Steel.
Arcade Malleable Iron Co., Worcester, Mass.
Booth, The Lloyd, Co., Youngstown, O.
Buffalo Steel Foundry Co, Buffalo, N Y.
The Burr & Houston Co., Brooklyn, N.Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Palmers & De Mooy, Cleveland, O.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
Springfield Steel Casting Co., Springfield, O.
St. Louis Steel Fdry Co., St. Louis, Mo.
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Syracuse Mall. Iron W'ks, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Thos. D. West F'dry Co., Cleveland, O.
Watkins Chilled Plow Co., Watkins, N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Hendryx, Andrew B. & Co., New Haven, Conn

Chemicals and Apparatus.
Eimer & Amend, 205 Third ave., N. Y.

Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Clippers.
Lee, Jesse & Sons, Philadelphia, Pa.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coal Hod and Vases.
Shepard, Sidney & Co., Buffalo, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.
Means Mfg. Co, Lancaster, O.
Waddel, Jno. M. Mfg. Co., Greenfield, Ohio.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.
Wister Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited), 4 and 6 Warren, N. Y.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.

Cork Pullers.
Greely, B. J., Boston, Mass.
Meriden Malleable Iron Co., Meriden, Conn.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O
Jersey City Galvanizing Co., Jersey City, N. J.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass
Southington Cutlery Co., Southington, Conn.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N.Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Cutlery Co., Chicago, Ill.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y
Empire Knife Co., W. Winsted, Conn.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutting Nippers.
Todd, H. B., Meriden, Conn.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.
Union Hdw. Co., Torrington, Conn.

Door Checks.
Morton Door Check & Spring Co., Boston, Mass.

Door Hangers, House and Barn.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Stearns, E. C. & Co., Syracuse, N. Y.
Terry Mfg. Co., Horseshead, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass.
Brown, McClure & Wales, Boston, Mass.
Buffalo Forge Co., Buffalo, N. Y
Burnham, G. & Co., Worcester, Mass.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Olmsted, L. H., Hasbrouck Heights, N.J.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wells Mch. Works, Fostoria, Ohio.
Wiley & Russell Mfg. Co., Greenfield Mass
Woodward & Rogers, Hartford, Conn.

Dripping Pans.
St. Louis Dripping Pan Co., St. Louis, Mo.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y.

Edge Tools. *Makers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevators, *Makers of,*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery Wheels.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineering Specialties.
Curtis Regulator Co., Boston, Mass.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Foundry & Machine Dept., Harrisburg, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Engraving and Printing.
Gies & Co., Buffalo, N. Y.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Montgomery & Co., 106 Fulton, N. Y.
Nicholson File Co., Providence R. I.
Reynolds Bros., Columbus, Ohio.
Western File Co., Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

(See Alphabetical Index, Page 124.)

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Fork Handles.
Iowa Farming Tool Co., Ft. Madison, Ia.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
LePage Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.

Grinding Mills.
Hill, A. M., New Haven, Conn.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Norton Emery Wheel Co., Worcester, Mass.
Star Machine Co., Philadelphia, Pa.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hair Crimpers.
Chicago Nickel Works, Chicago, Ill.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. & Co., 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y.

Horse Nails, *Makers of.*
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son, Malden, Mass.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Phila., Pa.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia,
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N. Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Iron, Rustless.
Wells Rustless Iron Co., 52 John, N. Y.

Ironware, Galvanized.
Hill, Jas. Mfg. Co., Providence, R. I.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Safety Lantern Holder Co., Baltimore.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
"Champion"
Enterprise Mfg. Co., Philadelphia, Pa.
F. & N. Lawn Mower Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
"Champion."
Gibbs Mfg. Co., Canton, O.

Lawn Sprinklers.
McGowan, J. H. Co., Cincinnati, O.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs. *Manufacturers of.*
Deits, A. P., 97 Chambers, N. Y.
Miller Lock Co., Phila., Pa.
Romer & Co., Newark, N. J.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Deering, Wm. & Co., Chicago, Ill.
Fairmount Mch Co., Philadelphia, Pa.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Knowles Loom W'ks, Worcester, Mass
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
National Machinery Co., Tiffin Ohio.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
King, J. M. & Co., Waterford, N. Y
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Charlestown, W. Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Graham, Jno. H. & Co., 113 Chambers, N. Y.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Meat Presses.
Osborn, H. F., Newark, N. J.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.
Hagen & Reid, W. Troy, N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Reed & Prince, Worcester, Mass.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Barrington & King Perforating Co, Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Haik & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Bradley & Co., Syracuse, N. Y.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Power Punches and Shears.
Ferracute Mch. Co., Bridgeton, N. J.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulleys.
Menasha Wood Split Pulley Co., Menasha, Wis.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Gould's Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Ripley & Bronson, St. Louis, Mo.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Columbiana Pump & Machine Co., Columbiana, Ohio
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

(See Alphabetical Index, Page 124.)

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.
Waddel, Jno. M. Mfg. Co., Greenfield, O.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N. Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Refrigerators.
Grand Rapids Refrigerator Co., Grend Rapids, Mich.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.
Wayne Works, Richmond, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled. Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakers.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y
Perfection Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls, N.Y
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85–89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia. Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24–27 West. N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Empire Knife Co., West Winsted, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shot.
Globe Shot Works, Philadelphia, Pa.

Sinks,
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Am. Skate Co., Philadelphia, Pa.
Barney & Berry, Springfield Mass.
Dame, Stoddard & Kendall, Boston, Mass.
Diaz, R. M. Co., Boston, Mass.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Hall, Elton & Co., Wallingford, Ct.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Malden Lane, N. Y

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Devlin, Thos. & Co., Philadelphia, Pa.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24–27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa. Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Step Ladders, Railroad.
Morley Bros., E. Saginaw, Mich.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Cincinnati Tool Co., Cincinnati, Ohio.
Fray, Jno. S. & Co., Bridgeport, Conn.
Humphrey Tool Co., Warren, Mass.
Jennings, C. E. & Co., 97 Chambers, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trowels.
Bradley & Pierson Mfg. Co., 135 Duane, New York.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.
Sherwood Mfg. Co., Buffalo, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Murray, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Colby Hdw. & Electric Co., Chicago, Ill
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 25 Dey, N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Milton Mfg. Co., Milton, Pa.

Washing Machines.
Wayne, Anthony Mfg. Co., Ft. Wayne Ind.

Water Motors.
Belknap Motor Co., Portland, Me.

Wedges, Axe.
Wooster, F. V., Boston, Mass.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, F. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth Holders.
Hosford, John, Monroeville, O.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.
Woods, Sherwood & Co., Lowell, Mass

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
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Sweetser, W. A. Brockton, Mass.

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Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
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Phillips, E. & Sons, South Hanover.
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Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
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Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Malin & Co., Cleveland, O.
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Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
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Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., worcester, Mass.
Graham, Bailey & Co., Buffalo, N. Y.
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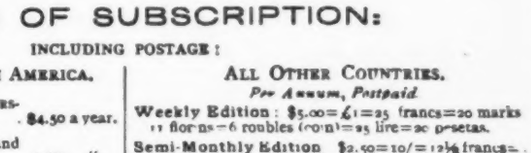
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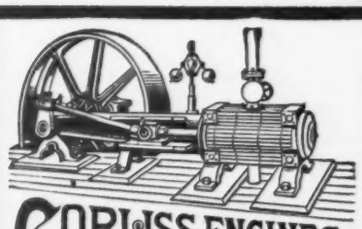
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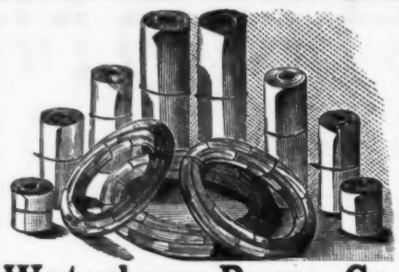
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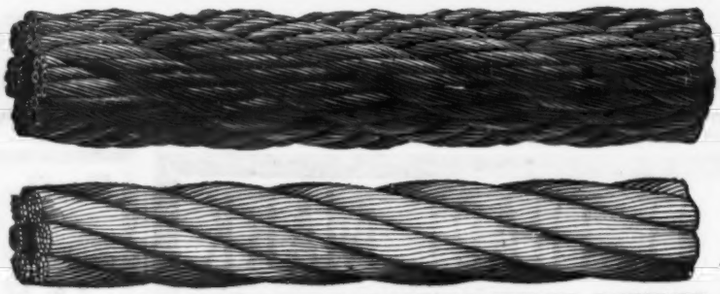
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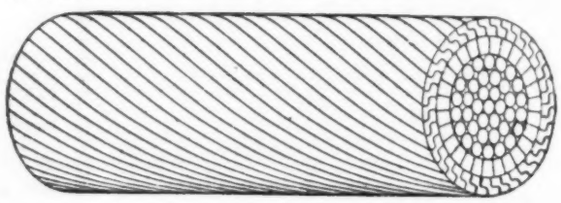
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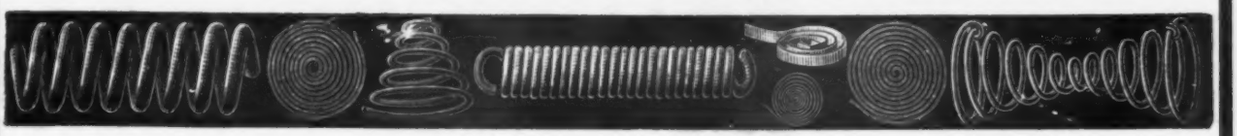
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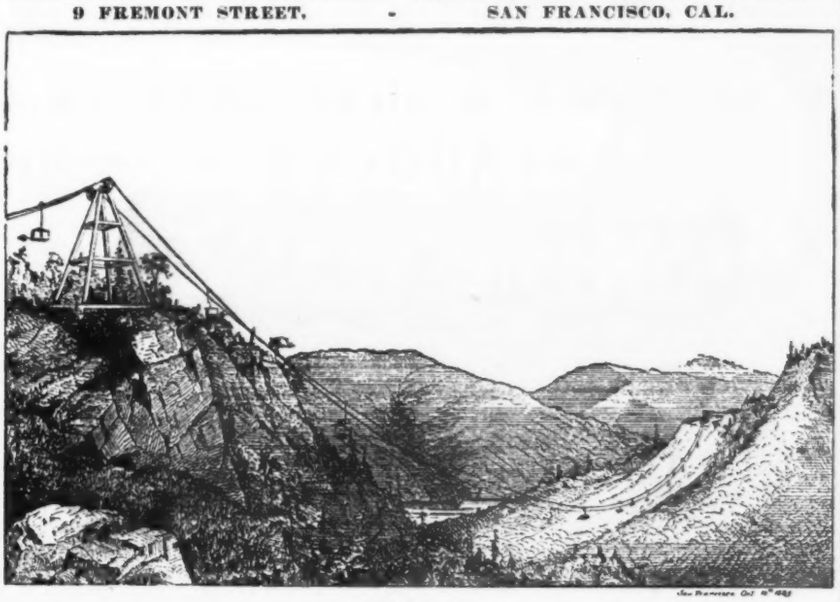
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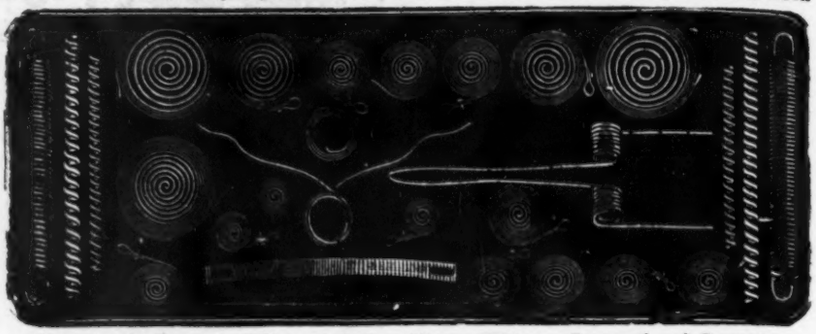
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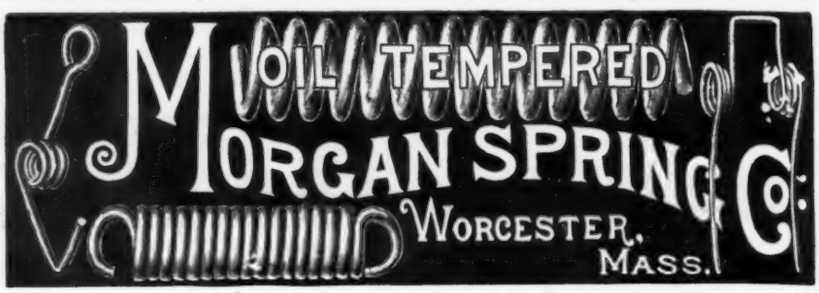
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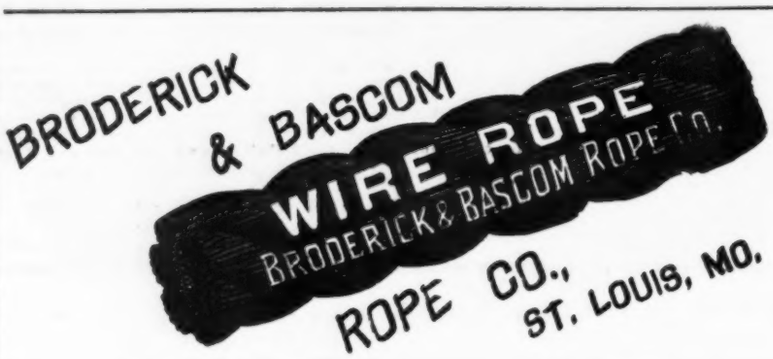
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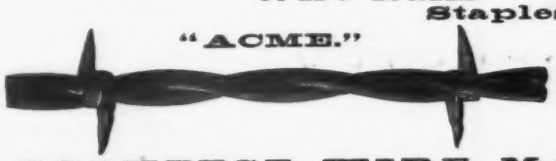
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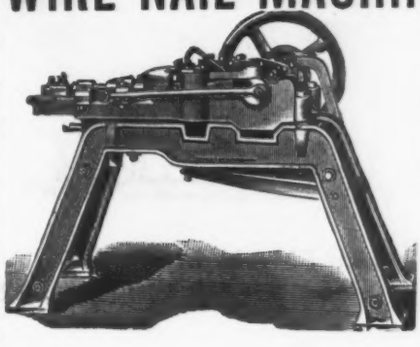
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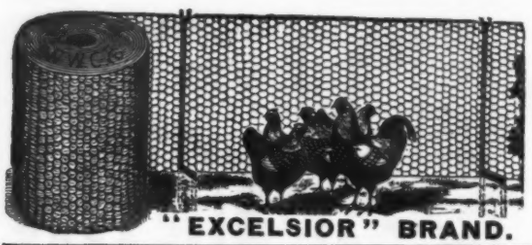
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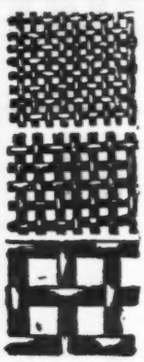
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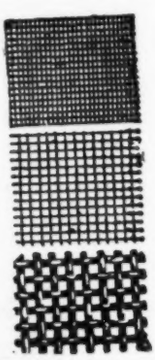
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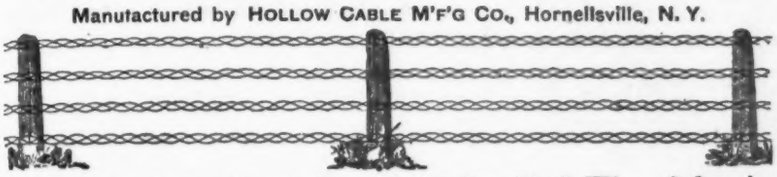
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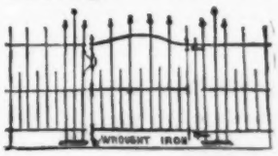
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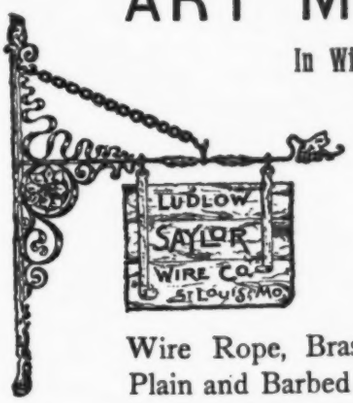
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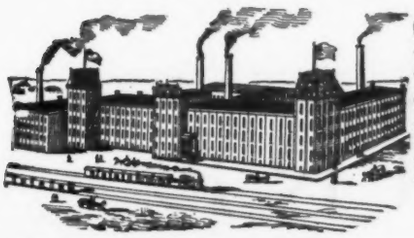
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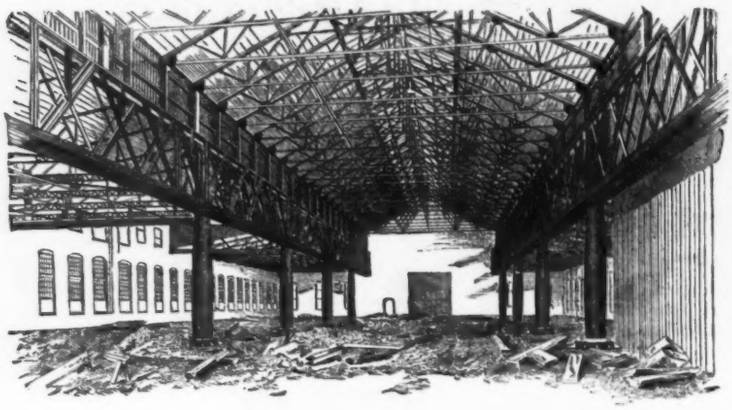
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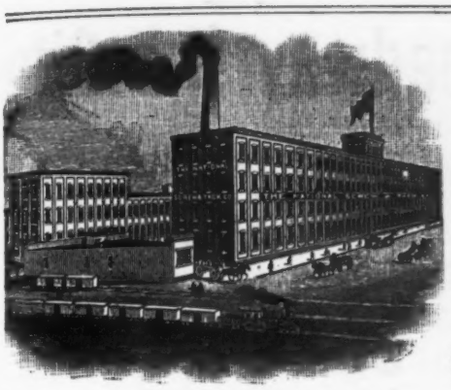
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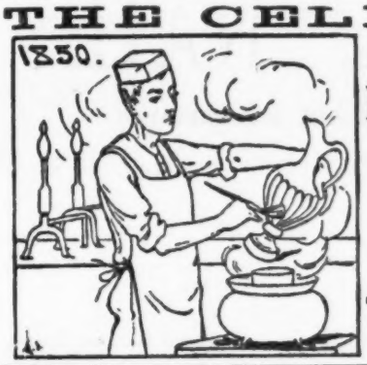
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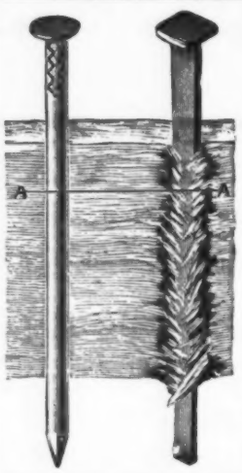
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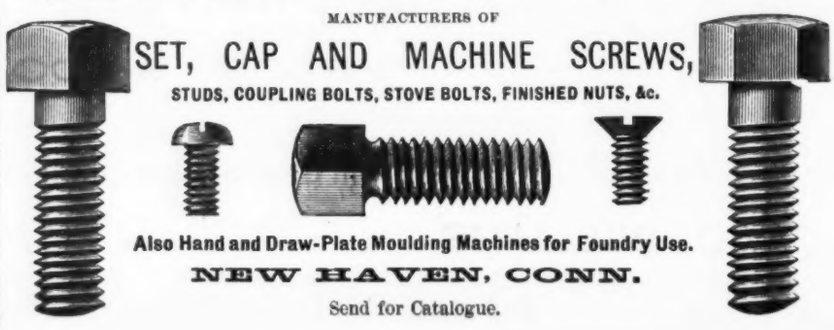
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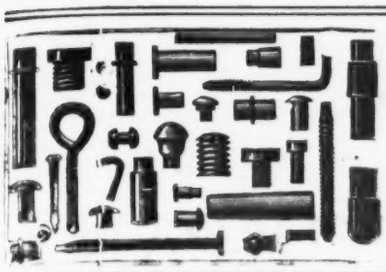
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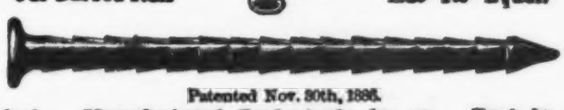
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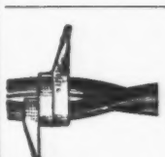
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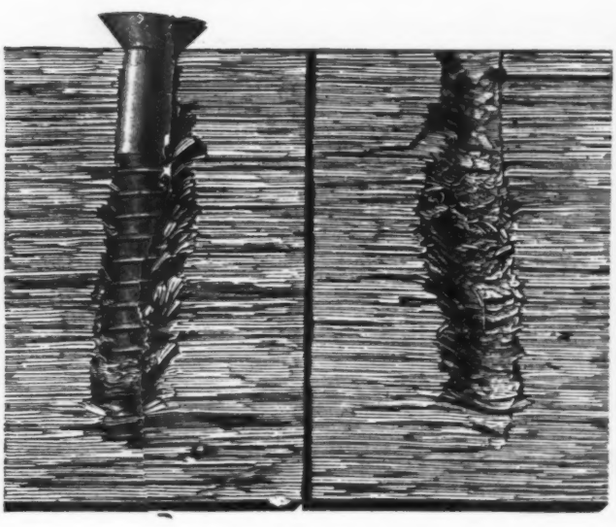
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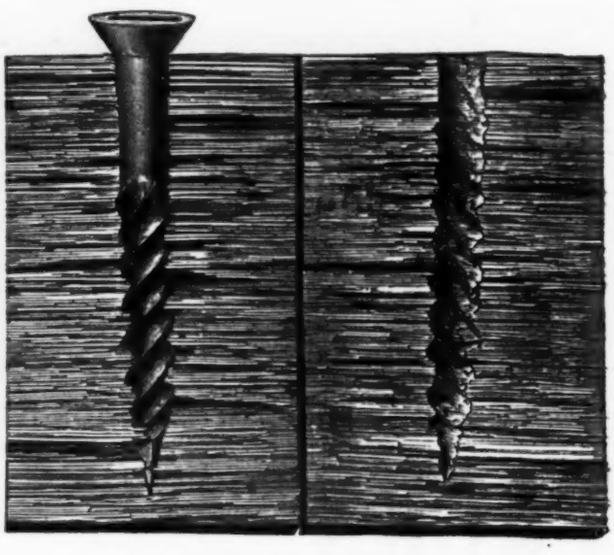
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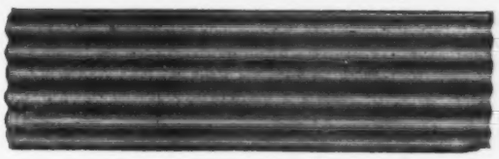
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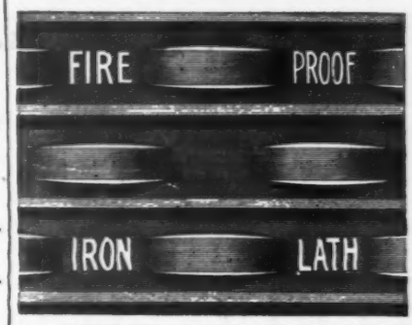
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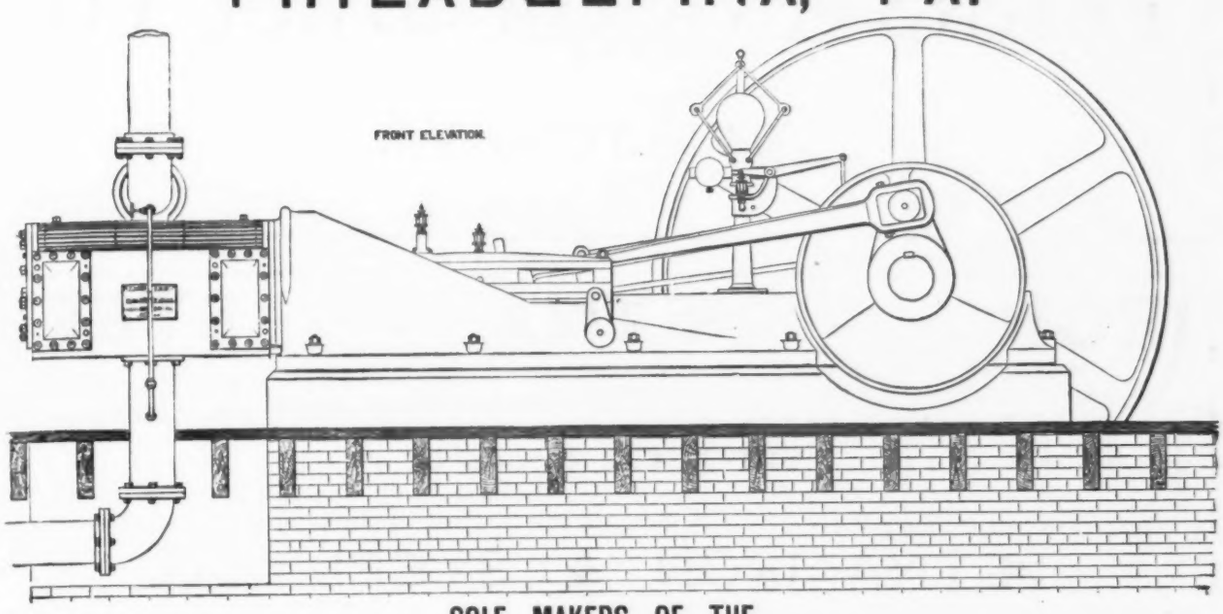
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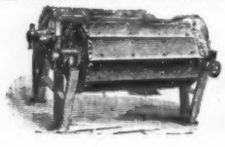
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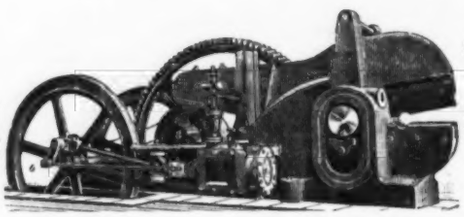
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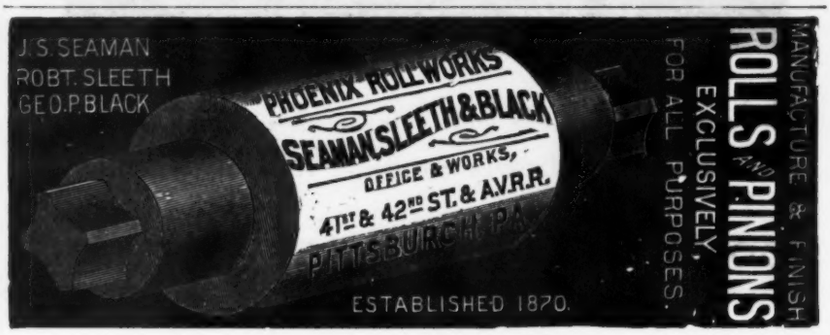
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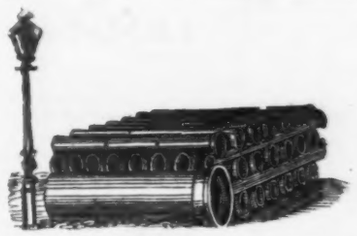
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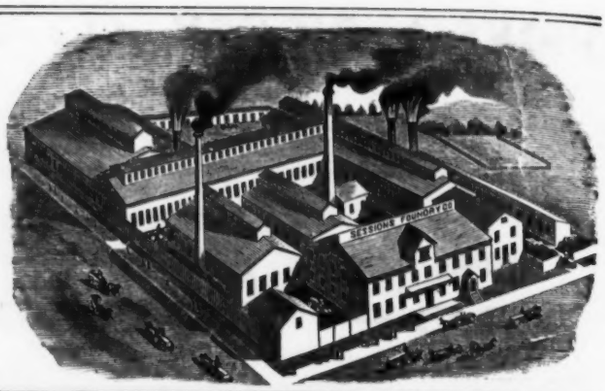
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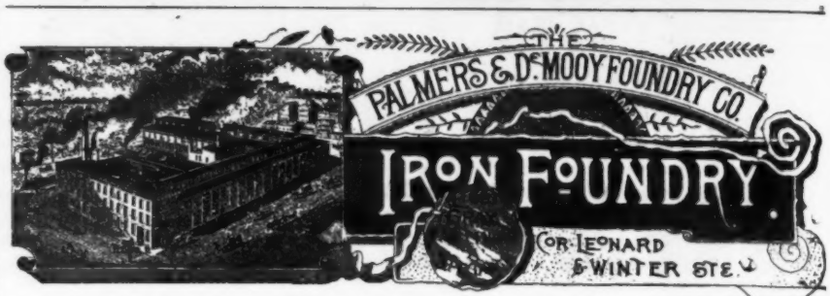
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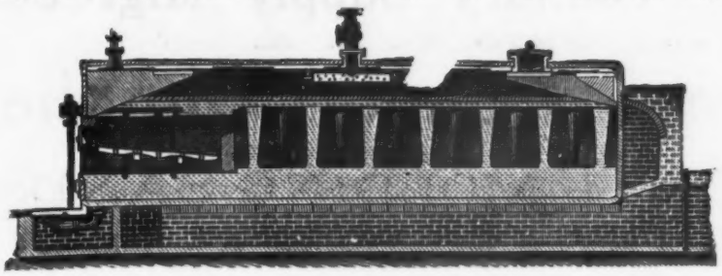
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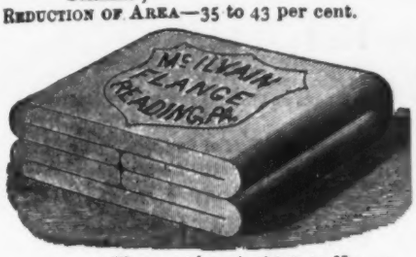
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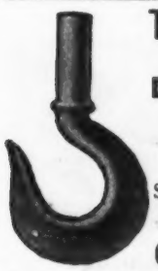
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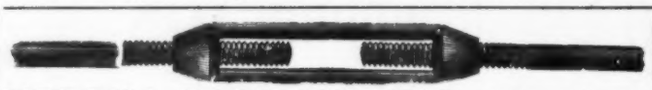
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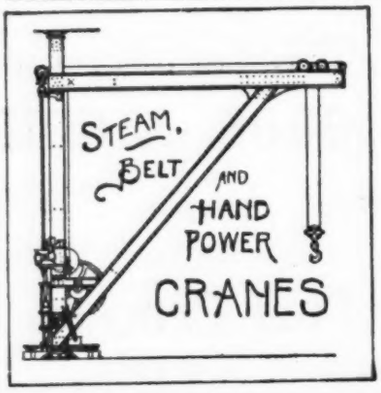
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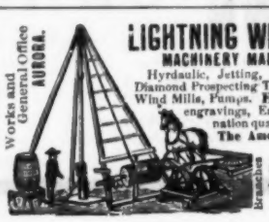
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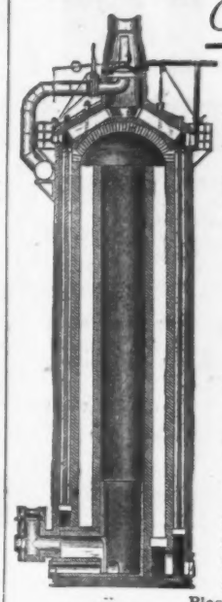
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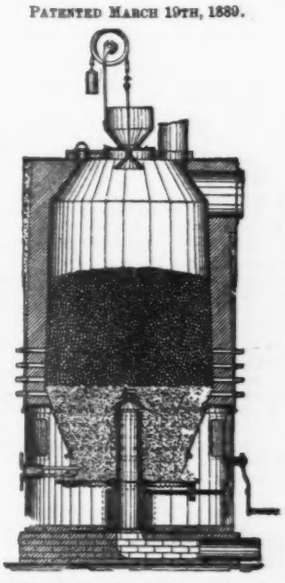


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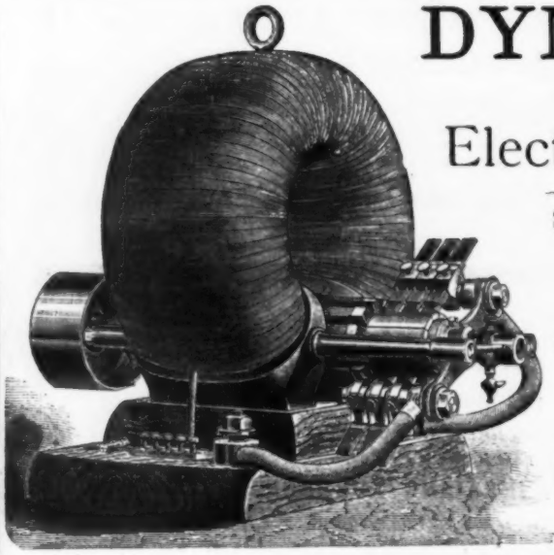
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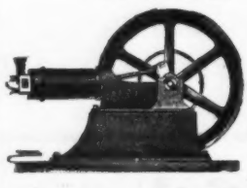
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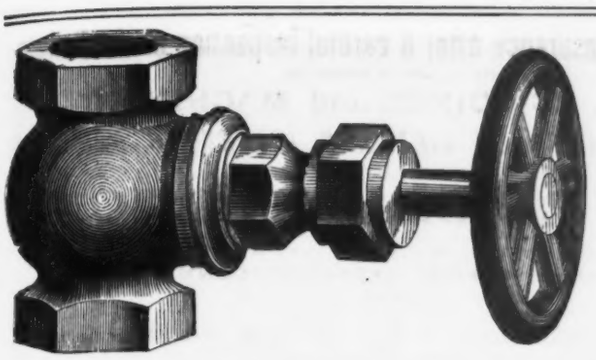
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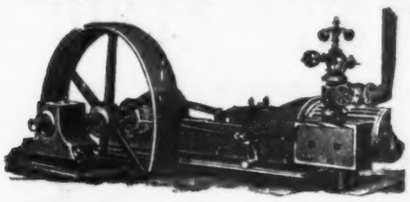


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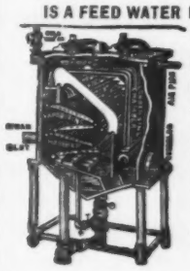
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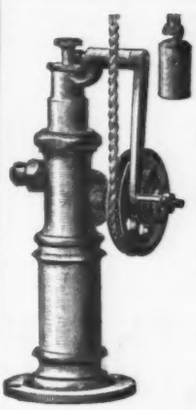
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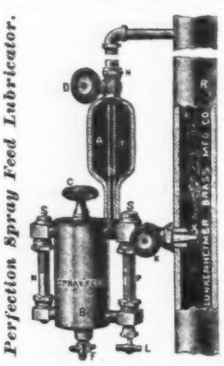
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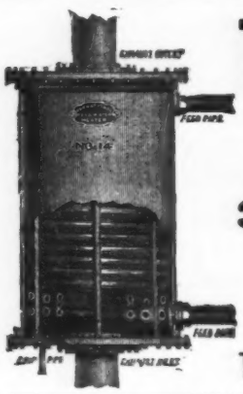
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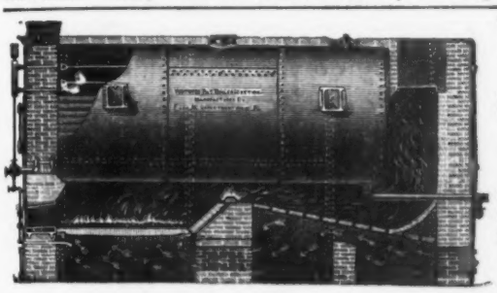
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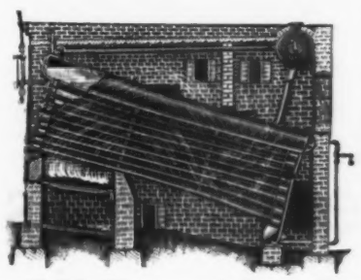
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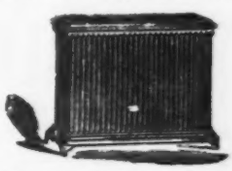


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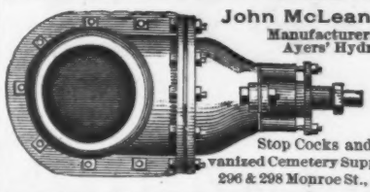


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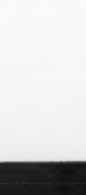


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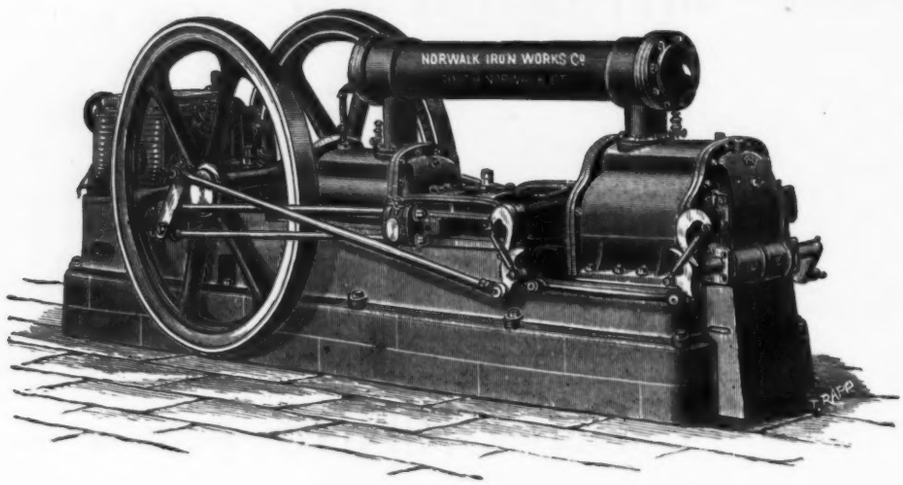
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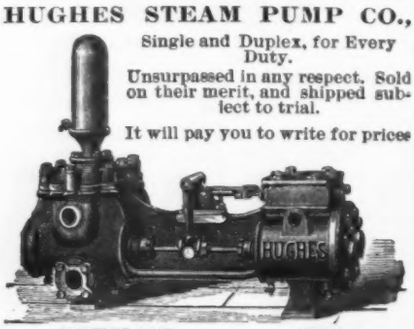
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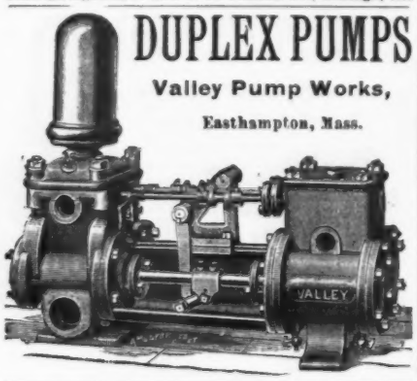
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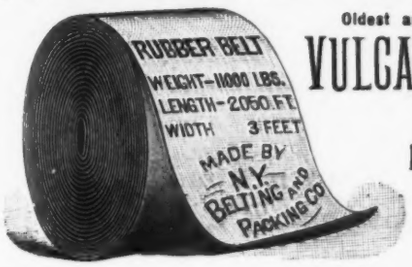
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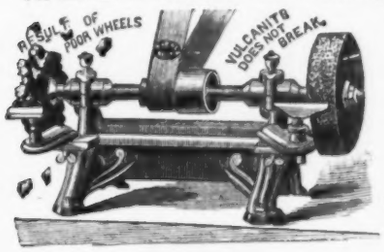
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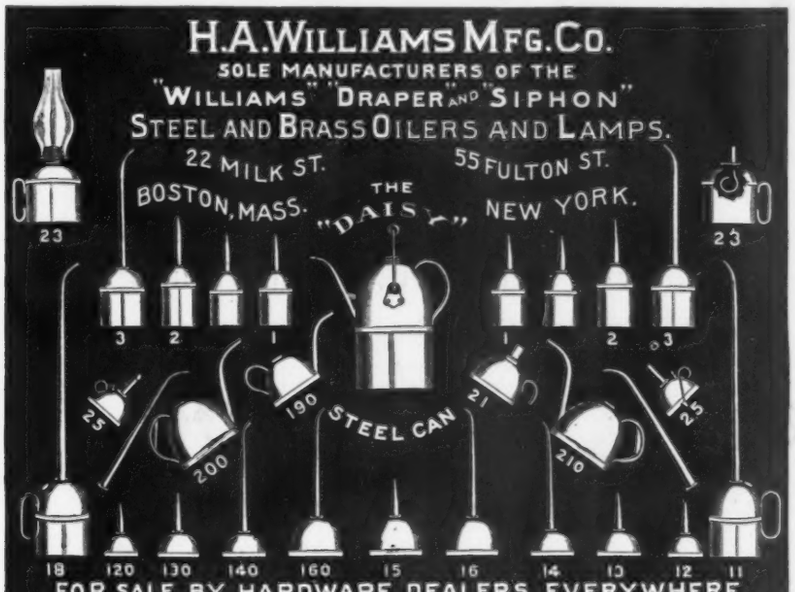
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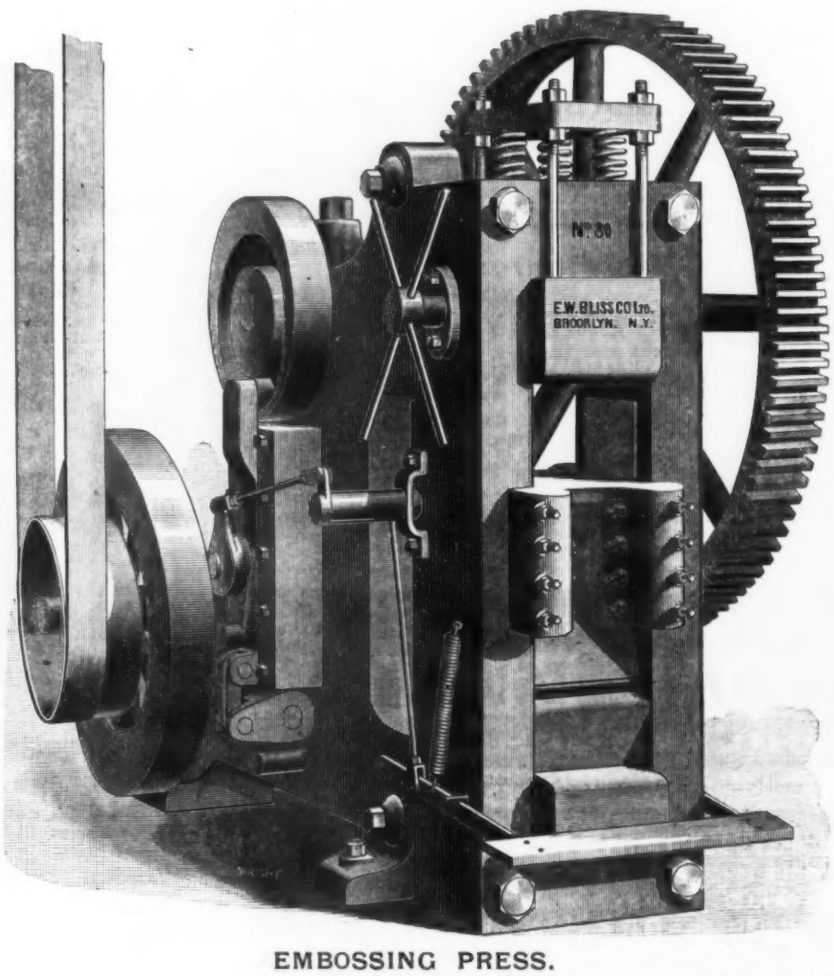
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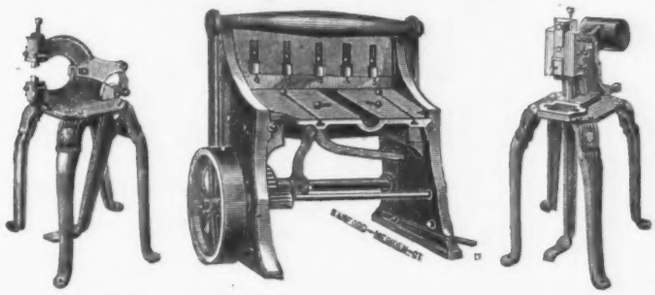
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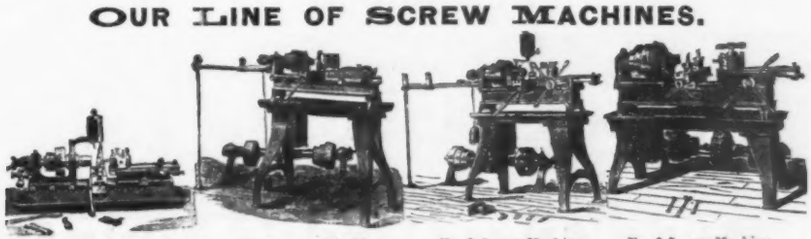


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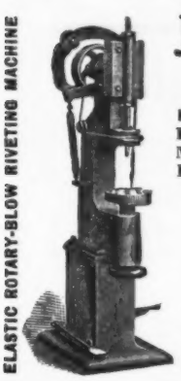
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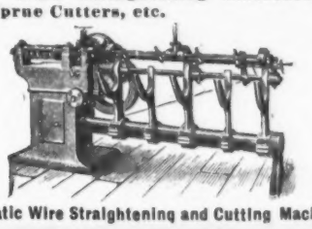


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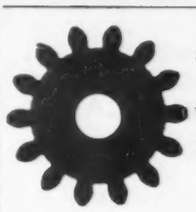


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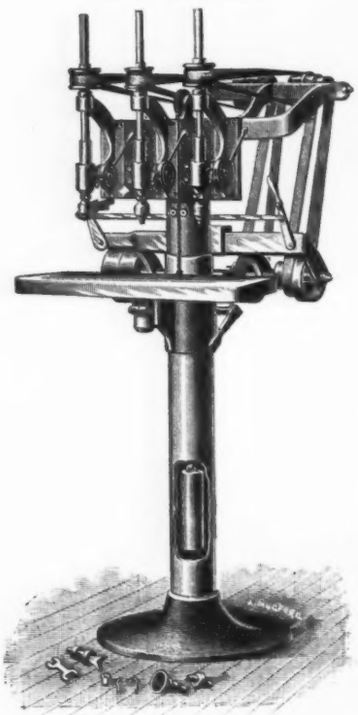
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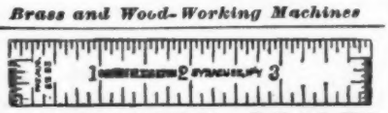


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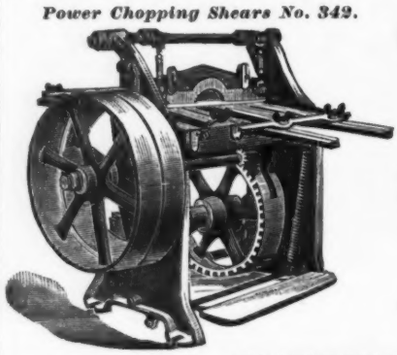
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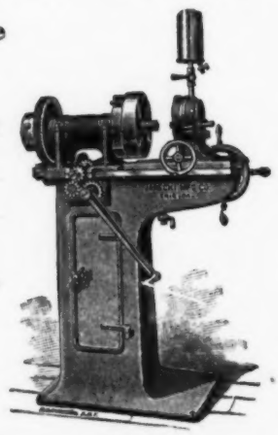
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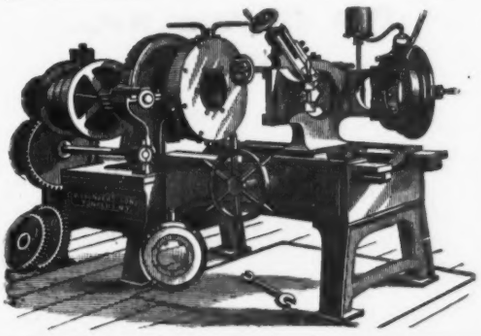
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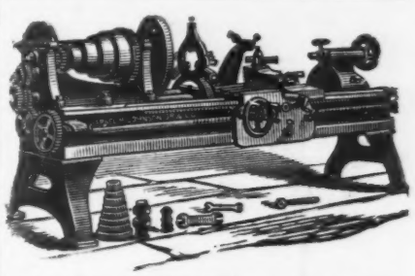
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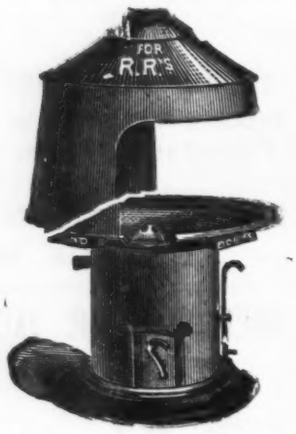
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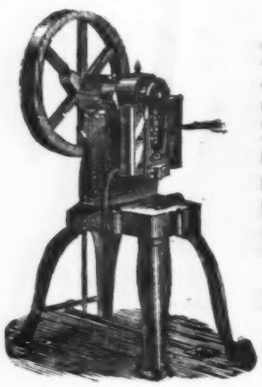
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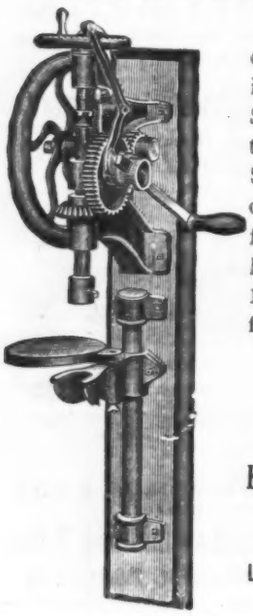
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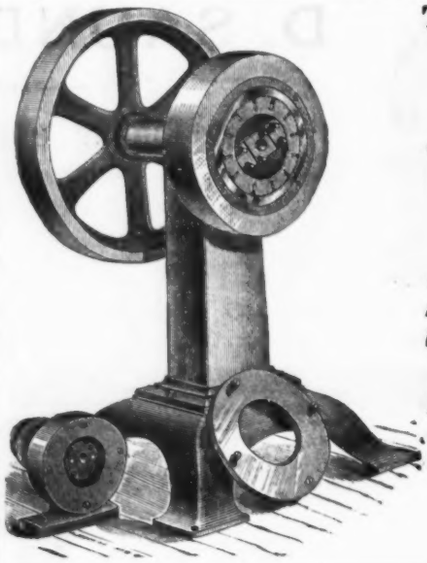


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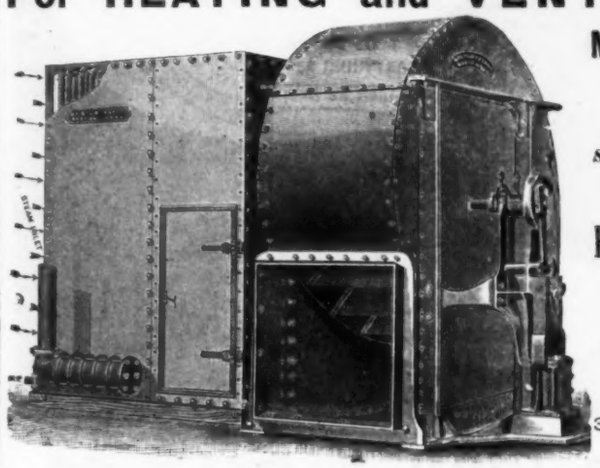


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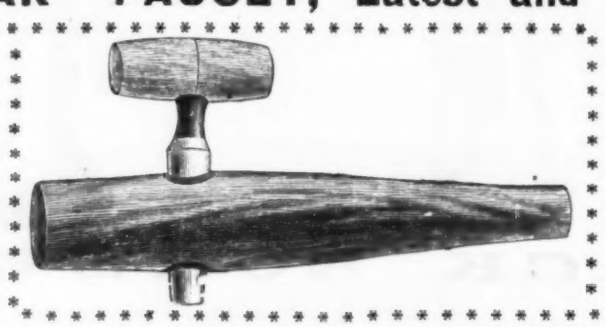
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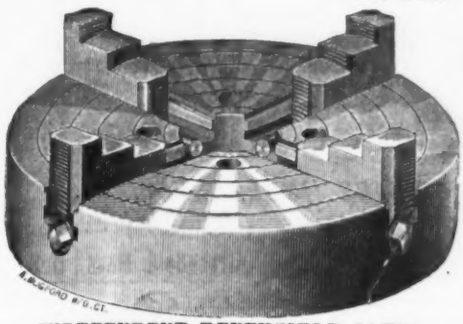
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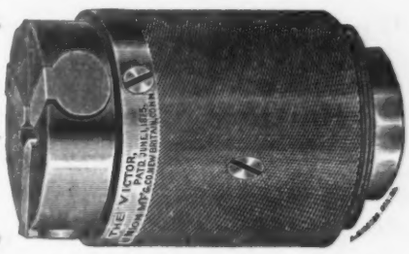
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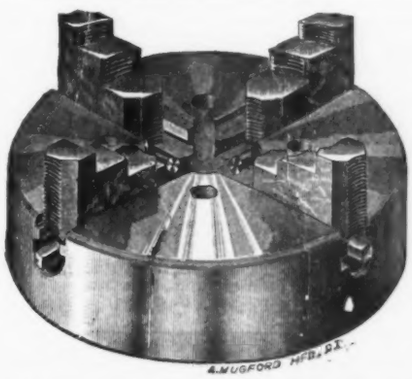
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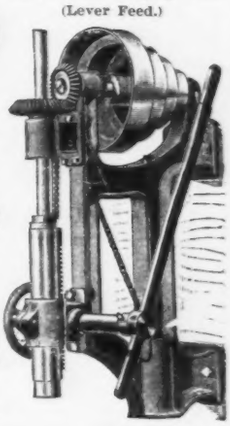
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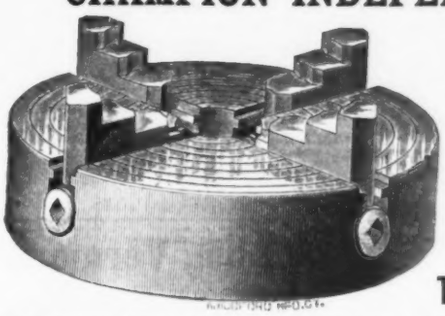
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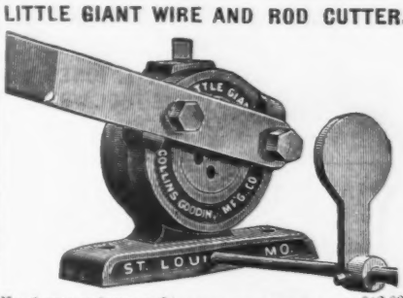


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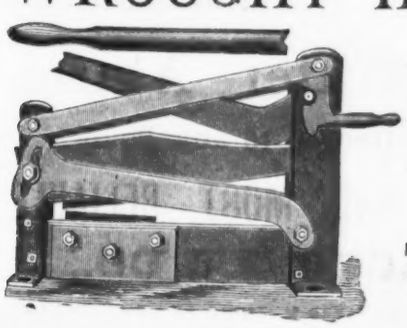
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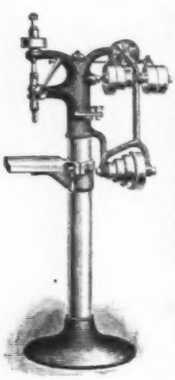
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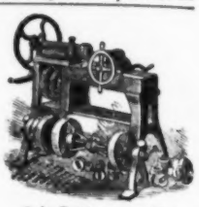


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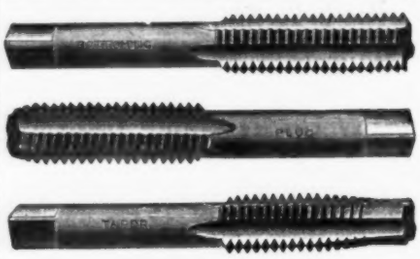
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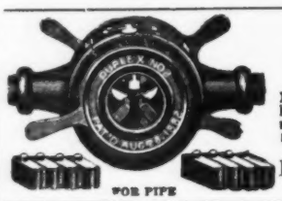
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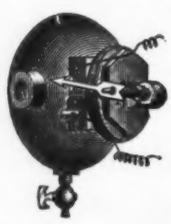
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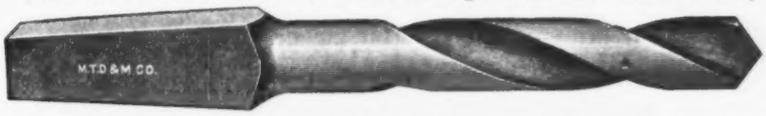
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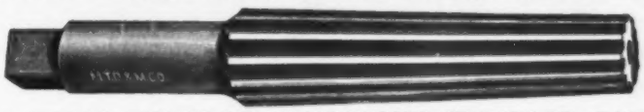
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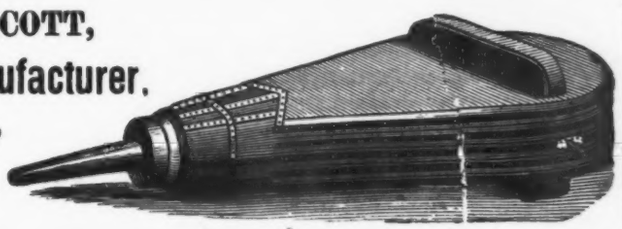
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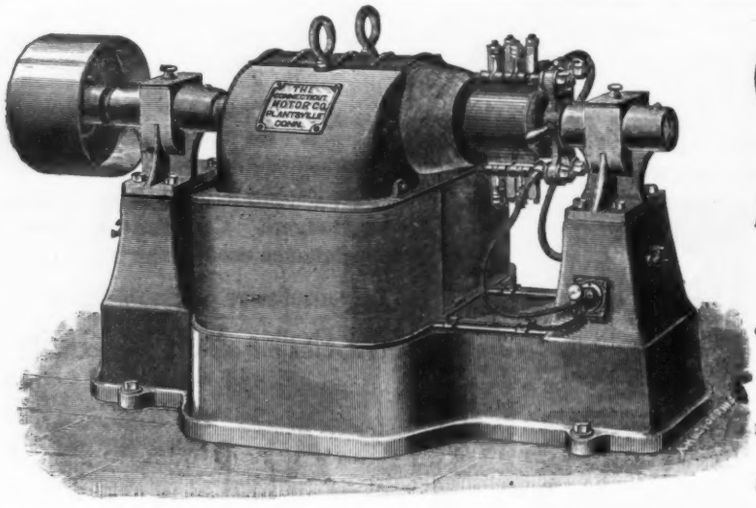
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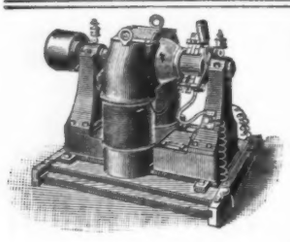
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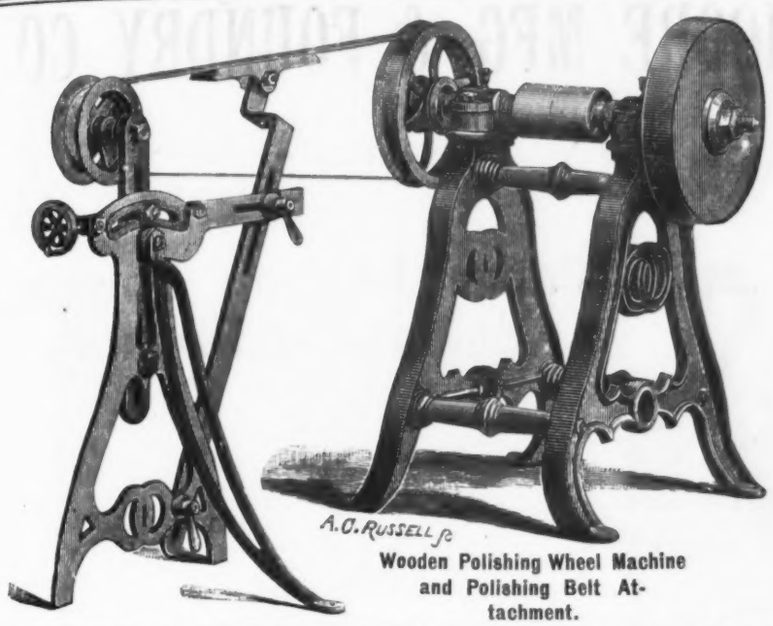
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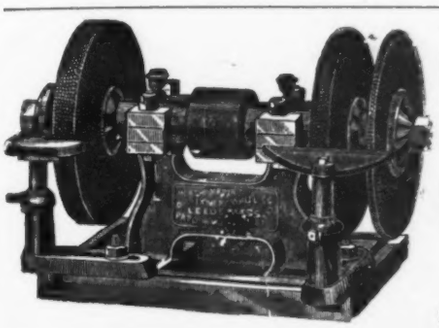


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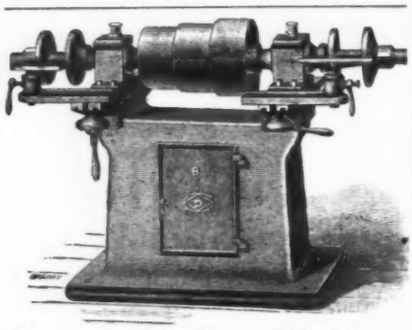
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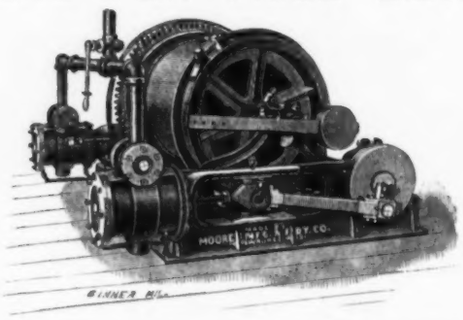
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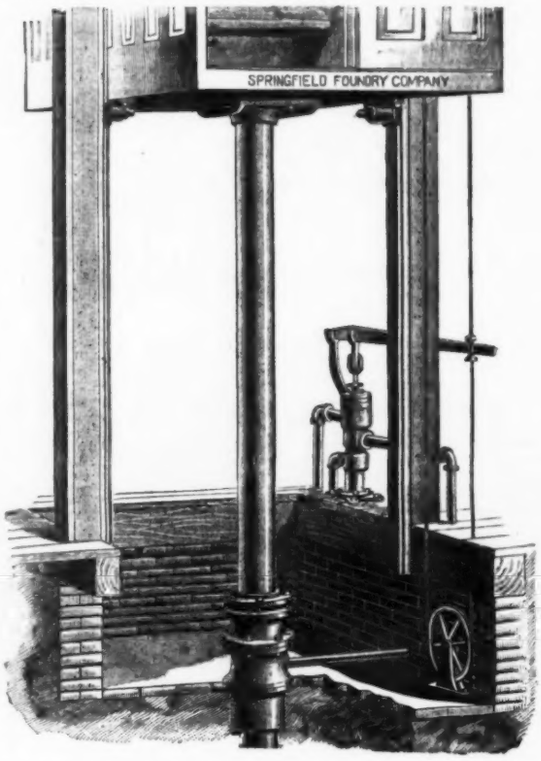
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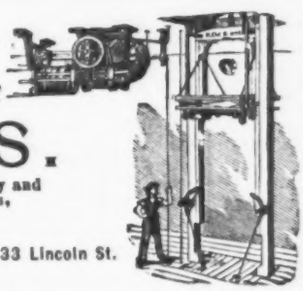
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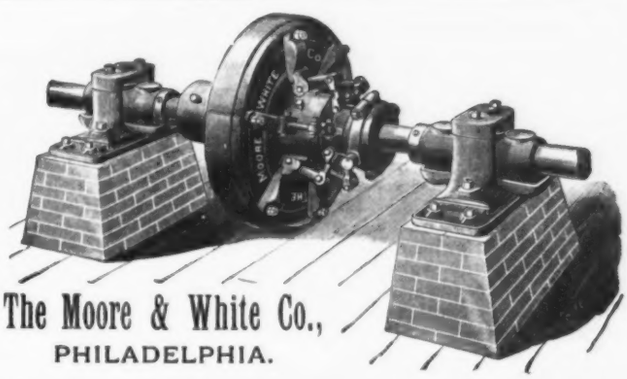
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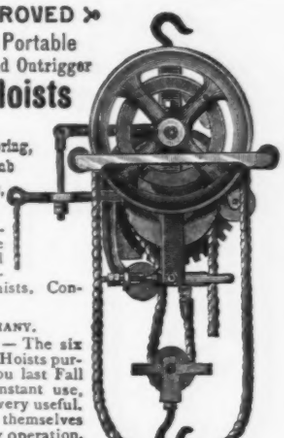
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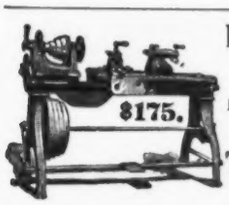
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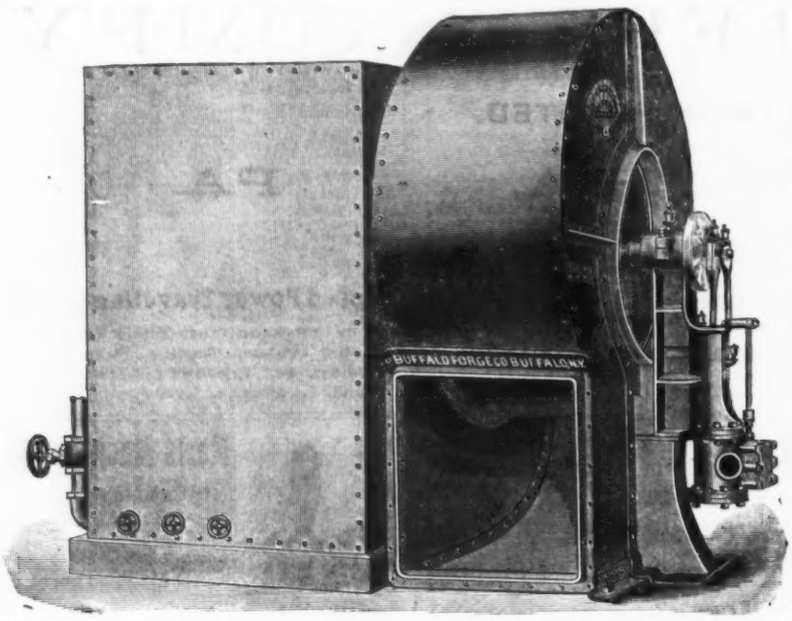
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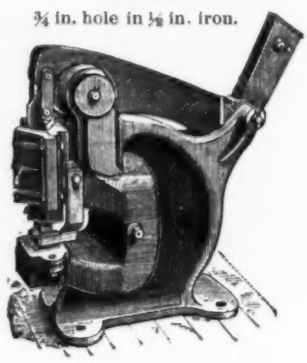
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One 12 in. x 24 in. Horizontal Slide Valve Engine.
One 6 H.-P. "Baxter" Engine and Boiler.
One 6 H.-P. "Erie" Vertical Automatic Engine.
Three 16 in. Upright Drills, lever feed.
One 18 in. x 8 ft. Engine Lathe. "Bishop."
One 24 in. x 8 ft. "New Haven" Lathe. Cheap.
One 7½ x 33 "Bishop" Planer. New.
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Nine Small Vertical Engines, various sizes and makes.
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One "Peck's" Drop Press, 450 lbs. ram.
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One Small Atmospheric Hammer.
One 6 H.-P. Portable Engine and Boiler, on wheels.
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Nine Vertical Boilers. New and second-hand.
One hundred and thirty-five new Sturtevant Blowers
One 16 in. x 30 in. Horizontal Slide Valve Engine.
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One 7 in. x 10 in. "Lidgerwood" Hoisting Engine, without boiler.
One 6 in. "Boynton" Shaper.
One "Kempsmith" Milling Machine. New.
One 7¼ in. x 7 in. x 10 in. Worthington Duplex Pump.

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SECOND-HAND MACHINISTS' TOOLS.

1 Iron Planer, planes 30 ft. long, 70 in. x 60 in. double head.
1 Sellers Planer, 8 ft. 38 in. x 36 in. double head.
1 New Haven Planer, 7 ft. 30 in. x 30 in.
1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 8 ft. 30 in. x 30 in.
1 20 ft. bed 72-in. Heavy Lathe
1 16 ft. bed 60-in. Engine Lathe.
1 11-ft. bed 19-in. Engine Lathe.
1 10 ft. bed 20-in. Engine Lathe.
2 8 ft. bed 18 in. Engine Lathes.
1 48 in. Vertical Boring Mill.
1 25 in. Blaisdell S. F. Drill.
1 20 in. Shaper A1 order (crank).
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Delemater Engine, 14 in. x 28 in.
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Corliss " 22 in. x 60 in.
Knowles Pump, 30 in. steam, 18 in. water.
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One each 6 & 8 H.-P. Portable Engine on wheels.
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Baker Blowers, Nos. 1, 2, 4, 4¼ and 5¼.
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Engines, Boilers, Rolls and the entire machinery of the plant, all of the latest and best construction, separately or together. Send for catalogue

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Vertical Blowing Engine, 30 in. steam cylinder 70 in. air cylinder, 5 ft stroke.
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Both have been used in operating a 70 ton charcoal furnace. Replaced in enlarging plant.
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In Second-Hand Machinery.

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1 4 ton Wrecking Crane, built by Bement, Miles & Co. New.
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1 45 H.-P. Westinghouse "Standard" Engine.
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All of the above are in first-class condition and in good working order.

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26 x 60 C. H. Brown Auto. Engine.
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Steam Pumps of all kinds.

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One Hor. Tub. Boiler, about 50 H.-P., 48 in. diam., 14 ft. long, double riveted, (25) 4-in tubes, Wetherill & Co. make; only used 4 months, fronts, bars and linings all complete, ready to set. Smoke Stacks, Iron Tanks, all sizes, Upright and Hor. Engines and Boilers ready for use; Boiler Shells, different sizes on hand, Scrap Iron, New and Old Metals. BUSSENIUS & CUNLIFFE, 1142 Washington Ave., Phila.

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10 Wire Nail Machines, only been run a short time; will sell either all or part; also Forge, Tumbler, Sturtevant Exhaust, &c.

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One boiler 24 ft. x 48 in., two flues.
One Lane & Bodley slide valve engine, 14 in. diameter, 32 in. stroke, with 10 ft. fly wheel.
One band wheel 7 ft. diameter, 18 in. face.
One band wheel 4 ft. 4 in. diameter, 14 in. face.
All to be in first-class condition, also shafting, hangers, pulleys, &c., of various sizes. Please address

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Vertical pattern, with balanced steam slide valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in.; engine new. For price and particulars address

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Prentice Lathes, 14, 16, 18 in. swing.
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Lathe & Morse Lathes, 15, 20, 27 in. swing.
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Lathe & Morse " 22, 24 in.
Prentice Drills, 20, 21, 24 25, 32 in.

SECOND-HAND (Cheap.)

Lathes 13 x 5, 16 x 8, 20 x 7, 25 x 10.
Planers 26 x 8, 32 x 12, 42 x 12, 54 x 18.
Drills 20 in. P. & W. make.

Send for complete list.

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2 Colt Compound Drop Presses.
2 70 H.-P. Boilers, 22 ft. long; 48 4-in. tubes 14 ft. long; in good condition; suitable for steam or oil tanks.
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converted into **MUCK BARS.** The operator of a Puddle Mill in Eastern Pennsylvania is prepared to arrange with owners or makers of Pig Iron for its conversion into Muck Bars for them, on favorable terms. Address

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We have several second-hand Berryman Feed Water Heaters, all in good condition, which have been replaced by larger heaters of same make; we have also a number of heaters of various makes and sizes taken in exchange for Berryman heaters, which we will sell cheap; Feed Water Heaters bought, sold or exchanged.

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15 in., 18 in., 24 in. and 30 in. lathes, 2 planers, 2 drills, 2 shapers, 1 Fox lathe and 1 Boring Mill for cash and houses paying 10 per cent,

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A Rolling Mill in the city of Chicago, well equipped and located for city trade. Capacity of about 100 tons of bar iron per day. It has one 10 in. and one 18 in. train, also one 18 in. muck train. Owners will take all or part of pay in bar iron. For particulars address

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For Ship Building or Tin-plate.

300 to 750 feet front on Delaware River, 1000 feet deep, including well equipped machine shop, foundry erecting shops, pattern shops, brass foundry and store room; will sell or join company to increase business in any direction, no better location on Delaware River; also R. R. facilities. For plans &c., apply to

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TOOL STEEL for sale, two tons Jessop's second quality, ⅞ and 1 in. Can you use any?

2

ORE CRUSHERS; wanted two, also two water wheels to send to Virginia, latter 30 to 50 H.-P. Send description.

3

WROUGHT SCRAP for sale, at Corning Iron Works, Corning, New York. No. 1 R. R.

4

WHEELS for sale, 50 sets new mining and 40 sets new contractors', good as new.

5

BRASS scrap wanted, Philadelphia delivery. What can you offer?

6

Please advise what you wish turned into cash, and your requirements. Same will have prompt attention.

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The Rolling Mill Property recently operated by James Rowland & Co., situated on Delaware Ave., above Poplar St., Philadelphia. The property consists of three large lots, including a Wharf, Brick and Frame Buildings; Valuable Machinery in good running order, including 4 trains of Finishing Rolls, 8 in., 12 in., 15 in. and 18 in.; Steel Plate Mill, Nail Mill, 11 Double Puddling Furnaces, 6 Heating Furnaces, Sidings, Artesian Wells, &c.. For further particulars apply to R. HECKSCHER & SONS, or at the office on the premises, 920 N. Delaware Ave., Philadelphia.

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Assorted Brass Patterns for use in manufacturing light hardware; also four (4) Japan Ovens complete with shelves. Write for particulars.

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Come and use the vast resources of West Virginia. Locate works at Charlestown. Free locations with best of Railroad facilities will be donated, and Cash Capital contributed.

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CHARLESTOWN MINING & IMPROVEMENT COMPANY.

An interest in a

Large Iron Property

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Brown and Red Hematite and Red Shale Iron Ores in great abundance. Transportation facilities good.

The ores make a superior quality of iron and are in demand. Immediate development desired.

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Four 80 Horse Tubular, one 90 Horse Tubular, four 50 Horse 2 Flue; all insured for 80 pounds steam.

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For Sale.

A large Rolling Mill, together with Spike Mill, Nut and Bolt Works, Fence Factory, Cooperage Shop, &c., situated at Rosedale, Kansas, 2 miles out of Kansas City.

Rolling Mill contains, 9, 12, 18 and 20 in. trains, with spare parts complete.

Bids on this property will be received up to December 1st. For further particulars, a complete inventory will be sent upon application to

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ONE OR TWO GENTLEMEN
TO PURCHASE

President's $70,000 interest Incorporated Manufacturing Company. Seller will loan company $100,000 to increase business if desired.

"A. L. B.,"
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Syracuse Rolling-Mill Machinery.

One 500 H. P. Vertical Buckeye Engine, 34 x 30 in.
One 300 H. P. Vertical Corliss Engine, 24 x 36 in.
Four Trains, 19, 16, 14, 9 and 8 inch Rolls, 3 high, with over 200 new spare turned Rolls; Housings and Bed Plates, all of modern construction.
One large Squeezer, Ore Crusher, Shears, Scales, Sturtevant Blowers, Shafting, &c.
Four Steam Pumps, three Blake, one Dean.
Four 80, One 90 Horse Tubular Boilers, double riveted flush front, full fixtures.
New Flue Boiler, 50 horse, and others, good order.
Porter Horizontal Engine, 80 horse; Vertical Engine, 60 horse.
One 8 x 10 High Speed Engine.
Complete Machine Shop Tools, Lathes, &c.
One first-class Ingersoll Compressor, 24 x 30.
Five Steam Drills.
Address GEO. M. CLAPP, Agt., 74 Cortlandt St., N. Y

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A Rare Opportunity.

A clean stock of Hardware, House-furnishing Goods, Builders' Hardware, Stoves and Tinware; in a thriving town in Southern New York; only Hardware store in the place; excellent stove trade; business built up and in a healthy condition; established 10 years under present management. Total business this year about $30,000, with good profits; stock will invoice about $6000; good reasons for selling. A splendid opportunity for parties with push and ability. Write at once to

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Half interest in first-class Hardware Business, located in Western New York, doing a good, prosperous business; nice, clean stock; will inventory January 1st about $10,000; store large and very convenient; will sell or rent store; reason for selling, wish to engage in other business; this is a rare chance. Address "HALF INTEREST," office of *The Iron Age*, 66 and 68 Duane St., New York.

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In a very pleasant town in New York, a well established and thriving Hardware business; store is conveniently built for the Hardware trade; sickness necessitates this move. Address STILSON & DIBBLE, Franklin, N. Y., or C. A. DOUGLAS, Middletown, N. Y.

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The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

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To Manufacturers of Stationary Engines, Steam Pumps, Boilers, Cranes, Cupolas, Ladles, Blowers, Machine Shop and Electric Light Equipments: Propositions will be received for furnishing either of the above mentioned. The Company will furnish specifications, blue prints and other information, reserving the right to reject any or all of the propositions made. Would be pleased to receive Catalogues, Circulars &c. Address

W. T. PARTRIDGE,

RADFORD PIPE & F'DY CO.,
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WANTED.—Second-hand double hoisting engine, suitable for unloading canal boats; boiler not needed. Address, with full particulars,

BUFFALO STEAM FORGE,
5 Lewis Block, Buffalo, N. Y.

Hardware Stock For Sale.
An exceptionally good opportunity.

Well assorted and complete stock of Hardware, Stoves, Housefurnishing Goods, &c., and one of the best retail stands in the city of Cleveland; old established and good paying business, nearly all cash; stock will inventory about $10,000 (ten thousand); satisfactory reasons given for selling; terms cash. Address

"CORNER,"
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FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,
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TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

WANTED.—An active party with capital say $20,000 to $40,000 and with some experience in manufacture of Muck Bars; mill located near Philadelphia and now running successfully; communications treated confidentially. Address "MUCK," P. O. Box 1086, Philadelphia Pa.

FOR SALE.—One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address

VULCAN IRON CO., LTD.,
New Castle, Lawrence Co., Pa.

FOR SALE, ROLLING MILL.

Unless sooner sold at private sale, the entire property and plant of the Iowa Rolling Mill Company, at Burlington, Iowa, will be offered at public sale to the highest bidder, on the premises, on the 13th day of December, 1890, at 2 o'clock P. M.; property consists of 22 acres of land, 3 dwelling houses, office &c., and the mill buildings, the latter entirely new; one 9 in. and one 16 in. train of rolls, with all necessary gas producers, furnaces, &c. By order of the stockholders; for further particulars address

JOHN F. HOLCOMB, Secretary.

WANTED.

Agency for Nails, Iron, Steel or Railway Supplies, by an experienced man, personally acquainted with Jobbing, Manufacturing and Railroad trade; adjacent to and West of Chicago, would travel portion of time if necessary; A 1 references given. Address

"J. M. S.,"
office of *The Iron Age*, 59 Dearborn St., Chicago.

WANTED.

A second-hand Shaper about 15 in. stroke, in good condition. Any one having a bargain can find a cash purchaser by addressing

EDWARD HARRIS,
198 State St., Binghampton, N. Y.

IDLE CAPITAL

should visit and investigate the advantages now being offered by Pittsburg, Kas. It is going to be a great big mining, manufacturing and smelting city of **100,000** people in a few years, because of its cheap fuel, raw material, railway facilities and central location.

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PITTSBURG, KANSAS, offers exceptional advantages to capitalists, investors, manufacturers and all reputable business concerns. Property cheap now, but advancing daily. Investigate quick. Address for particulars, PITTSBURG TOWN CO., PITTSBURG, KANSAS.

The best investment now offered to speculative capital is

Coal, Zinc and Mineral Lands

in Southwest Missouri and Southeast Kansas. If you want to buy, investigate by addressing

FRANK PLAYTER,
Investment Broker,
Pittsburg, Kan.

WANTED.

Competent and Reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.
Send for circular.

BURTON H. COOK,
321 Grand Ave., Brooklyn, N. Y.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

M. GENERELLY,
17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; warehouse and office centrally located.

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need address, with references,

"PARTNER,"
care of The Eaton, Cole & Burnham Co.,
82 & 84 Fulton St., New York.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,
Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE
TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
Commerce Street, Philadelphia, Pa.

FOR SALE
Rolling Mill and Bolt Works.

Fully equipped and running time and half time. Mill has 1 10 in. guide train, 1 heating furnace, with all the power necessary. Capacity of mill 10 tons per day. 1 30 H.-P. engine to run bolt and rivet machines &c., 3 latest improved rivet machines, 2 bolt furnaces, 1 large shears, with engine attached, 1 small shears Building is frame, 112 x 60 with slate roof and large ventilator. Unlimited supply of clear spring water flowing into mill through 12 in. main. Mill is located on Penn. R. R., and only several hundred yards from Philadelphia and Reading Railroad. Only responsible parties will be noticed. Special reasons for selling. Address all communications to

WM. H. DIEFENDERFER, Secretary, or
CHAS. E. QUAIL, President.
Auburn, Sch. Co., Pa.

WANTED
WIRE NAIL CONTRACTOR

An eastern manufacturer of wire desires to secure a competent man who will take a contract to manufacture wire nails on six wire nail machines, everything but labor and dies being supplied him. Address

WIRE NAIL MANUFACTURER,
office of *The Iron Age*, 66 and 68 Duane St., N.Y.

FOR SALE.

A clean, neat stock of Hardware, Stoves, Crockery and House Furnishing goods. Large Tin Shop and Hot Air Furnace Department attached. Stock by January 1st, 1891, can be sold down to less than $10,000. In a live western city of 22,000 inhabitants. Owner has run the business over 30 years and wishes to retire. Address "ILLINOIS,"
office of *The Iron Age*, 66 and 68 Duane St., N.Y.

Ingersoll Air Compressor, 24 x 30

Good as new, at a bargain,

Geo. M. Clapp, Agt., 74 Cortlandt St., N. Y.

WANTED.—A partner, with capital, in Iron Commission business in Philadelphia, (with correspondents in Pittsburgh and New York), having an established trade and showing 20 per cent profit on capital of $40,000. The withdrawing partner has been appointed to position in Furnace and Mill Company. The remaining partner cannot handle the whole business with the desired effect. A man who has had some experience in iron business preferred. Address "PHILADELPHIA COMMISSION," office of *The Iron Age*, 220 South 4th Street, Philadelphia, Pa.

For Sale.

A valuable patents on Ice Skates.

VOM CLEFF & CO.,
105 Duane St., New York.

WE HAVE on hand an assortment of German Acme and also new patent Acme Skates. Please send for prices

VOM CLEFF & CO.,
105 Duane St., New York.

Pattern and Machine Shops.

Wanted to rent, 8000 to 10,000 square feet of floor space in one or more lofts, with power (about 20 H.-P) for the manufacture of special tools and fittings, located near foundries and malleable iron works, convenient to New York City; good water supply and use of steam and gas for testing purposes desirable. Address

"FITTINGS,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

NOTICE TO MANUFACTURERS.

What have you got to sell to the trade of Cleveland, Ohio, and vicinity?

Write to GREGG & BECKER,
Manufacturers' Agents,
67 Rockwell St., Cleveland, O.

FOR SALE.

A first-class and profitable hardware business located in a Western New York village of 5000 inhabitants. Satisfactory reasons given for selling. Parties meaning business only address

"RARE OPPORTUNITY,"
ffice of *The Iron Age*, 66 and 68 Duane St., N.Y.

WANTED.

A new or second-hand Wire Nail Machine in good condition, to cut No. 8 wire nails not less than 3 inches long.

Address, with description,
"NAILS,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

Stock For Sale.

A firm having rolling mill near Philadelphia in successful operation and transferring same into stock company to extend business, desire purchasers for portion of stock. Treasureship open to a liberal, desirable subscriber. Address

"P. B. C,"
office of *The Iron Age*, 220 So. 4th St., Philadelphia.

FOR SALE.

One-half interest (to commence February 1, 1891,) in an old-established and flourishing business, trading in Hardware, Stoves, Furnaces, &c., and doing an extensive Plumbing and Jobbing business; located in one of New York City's most flourishing suburban towns, and commanding the bulk of trade in this fast growing section. Store and equipment said to be the finest in the East. Annual business over $100,000 and steadily increasing: stock about $25,000. Will sell only to one who will take an active part in management and furnish satisfactory credentials. Address

GEORGE D. FURGUSON & CO., Mt. Vernon, N. Y.

WANTED.

Partner with $75,000 to $100,000 capital to purchase interest of retiring partner in Rolling Mill in successful operation near Philadelphia. Address

"WARD,"
office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

TO HARDWARE MANUFACTURERS.
A gentleman who is interested in the manufacture of a limited number of goods wants another line of hardware or specialties to represent on the road in connection with his own. He travels continuously, covering the whole of U. S., and is favorably and personally acquainted with all the large jobbers and larger retailers; previous to going into the manufacturing business, was connected with a large jobbing house, and has a thorough knowledge of all branches of the hardware business. Address "L 90," office of *The Iron Age*, 66 & 68 Duane St., New York.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,
PORTLAND, OREGON.

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Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

WOLCOTT & WEST, SYRACUSE, N. Y.

MARK C. FARR,

Manufacturer and Dealer in

Specialties in Machinery and Small Ware.

Correspondence Solicited with those having anything new or practical to offer.

No. 30 WEST RANDOLPH ST.,
Chicago, Ill.

Fluor-Spar.

MULLINS'
Fluor-Spar and Lead Mining Co.,

220 First National Bank Building

CHICAGO, ILL.

This Company owns, at Mineral City, on the Ohio River, the largest Mines of Fluor-Spar ever discovered.

We are working a large force of miners; our new mills and tram railway are running, and we are now prepared to furnish the purest Fluor-Spar in any quantities to Iron and Steel Manufacturers, to Smelters of Gold, Silver and Copper, and to Paint, Paper and Glass Makers.

Fluor-Spar is pronounced the most powerful of fluxes; it facilitates the reduction of the most refractory materials. For Alkalies, Clays, and all Metallic Oxides it has a remarkable solvent power; it reduces the melting point, and saves fuel; it diminishes the loss of metal, saves labor, and keeps the cupola clean; reacts strongly upon scaffolds and cloggings.

One part of Fluor-Spar is more effective than ten parts of Limestone. Limestone is an enemy to iron; Fluor-Spar is a friend.

Directions for the proper use of Fluor-Spar given our patrons.

We ship Lump, Gravel, Crushed and Ground, in bulk or barrel.

SPECIAL NOTICE
TO CONSUMERS OF CHARCOAL IRON.

Wyebrooke Charcoal Pig Iron, strictly cold blast.
Has splendid chilling qualities and great strength.
Furnace now in blast and orders can be filled promptly.
For sale by

L. & R. WISTER & CO.,
257 S. 4th St., Philadelphia, Pa.

TO BOLT AND NUT MANUFACTURERS.
FOR SALE.

The best machines for making chamfered and trimmed cold press nuts automatically; the only machine that will punch any thickness without injury to the tools from stretch of the iron. Foreign patents for sale.

DUNHAM NUT MACHINE CO.,
Unionville, Conn.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

TRAVELING SALESMAN wanted; one thoroughly conversant with sheet, brass and copper. Address giving full particulars and references "A. B." office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A PHILADELPHIA branch house, a good, sober, reliable man to act as traveling salesman; one conversant with the bar steel business preferred; must show good references and make Philadelphia his headquarters. Address "STEEL," office of *The Iron Age*, 220 S. 4th St., Philadelphia.

A MAN AS Superintendent in a small jobbing and manufacturing establishment employing about 20 men; must be competent to read blue prints and make rough sketches and have general information on steam heating and machine shop work. Address "R. A." office of *The Iron Age*, 66 and 68 Duane St., New York.

A FIRST-CLASS Salesman; one accustomed to selling jobbing and large retail hardware and iron trade, to handle full line of Iron, Steel and Nails; bright, smart, hard worker wanted. Address, giving references and salary expected, P. O. BOX 694, Cincinnati, O.

COMPETENT MAN, as manager of works comprising open hearth plant, rolling mill and its various products; will be required to take full charge and responsibility and superintend all details; state experience, references and salary required. Address "WORKS MANAGER," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

AS PAYMASTER, bookkeeper and manager of a small office, a married man over forty years of age; must have undoubted references and have occupied similar position; salary satisfactory. Answer, stating references, "PAYMASTER," office of *The Iron Age*, 66 and 68 Duane St., New York.

MECHANICAL DRAUGHTSMAN wanted; one familiar with crane construction preferred. Address, giving age, experience and references, THE YALE & TOWNE MFG. CO., Stamford, Conn.

A MECHANICAL Draughtsman and designer for boiler and engine works; state experience and salary expected and give references. Address "D. AND D," office of *The Iron Age*, 66 and 68 Duane St., New York.

TRAVELING SALESMAN; an experienced and thoroughly steady, energetic man who can put in effective work with the manufacturers of agricultural implements and metal workers throughout the West. Address "X CARRIER No. 26," Worcester, Mass.

A FIRST-CLASS Moulder to take charge of small shop doing nothing but bench work; pleasant location and good pay to right man; give age and where have been working; all replies considered confidential. Address "BENCH MOULDER," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN to sell in a machinists' tool store; only a person having knowledge of the business will be listened to; no loungers or idlers; we will not employ one whom we have to teach. A. B. HARRIS, Box 879, New York.

A MAN competent to take position of superintendent in foundry making crucible and open-hearth steel castings; must have best references as to ability to make good, sound castings and must be able to take entire charge of this department of the works. Answer, giving full particulars and stating salary expected, "STEEL CASTINGS," office of *The Iron Age*, 66 and 68 Duane St., New York.

A SALESMAN on salary, familiar with Merchant Steel, Mill Product and with the New England trade. Address, with references, expenses, &c., "MILL PRODUCT," office of *The Iron Age*, 66 & 68 Duane St., New York.

WANTED, by a wholesale Hardware house, a young man well posted on general Hardware; must write a good plain hand, be familiar with discounts and quick at figures. Address "ACTIVE," office of *The Iron Age*, 66 and 68 Duane St., New York.

GOOD MEN for metal cornice work who also understand the working of sheet metal in various forms, particularly very light fine work. Also two good tinsmiths. Address "FINE WORK," office of *The Iron Age*, 66 and 68 Duane Street, New York.

A THOROUGHLY competent man to take charge of Furnace Department of a Tube Works. Address, stating experience and names of references, "TUBE WORKS," office of *The Iron Age*, 220 South 4th, St., Philadelphia.

TWO EXPERIENCED Mechanical Draughtsmen. Apply to
THOMSON ELECTRIC WELDING CO.,
Lynn, Mass.

FOUR OR FIVE A 1 mechanic safe makers who thoroughly understand the construction of metal safe doors, &c., in connection with working sheet iron and steel. Address "SAFE DOORS," office of *The Iron Age*, 66 and 68 Duane Street, New York.

TRAVELING SALESMAN wanted in every State, to sell the Smolley "T" Steel Fence Post as a side line, on commission; name territory covered; samples furnished and commission promptly paid. Address JOHN G. SMOLLEY, Connersville, Ind.

TREASURER WANTED.—An experienced financial manager who can control $10,000 to take the position of Treasurer, who has ability and experience in manufacturing. The works are situated in one of the most flourishing and enterprising cities in the Northwest. First-class references given and required. Address "A. D.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 68 Duane street, New York.

A FIRST-CLASS Machinist on general repair work. Address "GENERAL REPAIRS," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT, MANUFACTURING Co., Cuba, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

YOUNG MAN with experience in manufacturing hardware specialties and with an extended acquaintance with Western jobbing trade is open for an engagement with manufacturer either on road or in factory; best of references. Address "F." office of *The Iron Age*, Shawmut Building, Boston, Mass.

YOUNG MAN with an extended experience and acquaintance with the jobbing hardware and sporting goods trade throughout the West is at present open for an engagement as salesman; refers to present employers; would prefer to represent some manufacturer of standard goods or hardware specialty. Address "K," office of *The Iron Age*, Shawmut Building, Boston, Mass.

A POSITION as Traveling Salesman, with either manufacturer or jobber, by a well experienced man in General and Builders' Hardware; has traveled extensively and is well known among the Hardware trade of Pennsylvania, Ohio and Indiana, and other States West and South. Address "W. W. T.," office of *The Iron Age*, 220 So. 4th St., Philadelphia.

BY JANUARY 1st, position as Superintendent of Builders' Hardware manufactory; Locks a specialty; by a man who thoroughly understands the manufacture of this line of goods in all its branches; has had large experience in the handling of men; can give good references and recommendations. Address "T. D. M.," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY TWO YOUNG MEN of energy and push an article to represent in New York and vicinity. Address "M. Y.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A LIVE SALESMAN is now open for an engagement January 1st; or would like to represent one or two manufacturers of novelties (merit preferred) in New York and vicinity; experienced, city and road: A1 references; nine years present employers. Address "LIVE SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

LOCAL AGENCY for Providence for some specialty in hardware, or line of cordage and sheathing paper; best of references and large acquaintance. Address "A." P. O. Box 1279, Providence, R. I.

A YOUNG MAN of character and good address with a large connection among plumbers, engineers, tinsmiths and metal houses in Alabama and the South wishes to act as salesman for manufacturing or importing house; excellent references. Address "R. A," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

BY A YOUNG MAN from the country with a wholesale or large retail house; ten years' mercantile experience; unquestionable references for character and ability. Address "H.," Box 97, Marysville, Ohio.

EXPERIENCED COMMERCIAL Traveler, with established trade among jobbing and best retail trade Ohio, Indiana, W. Virginia and Michigan, desires good additional lines on commission; tools, specialties, housefurnishing goods, cutlery, plated ware, &c.; only those willing to pay fair commission for honest work address "COMMERCIAL AGENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

AS CHEMIST or assistant chemist, by a young man 23 years of age who has had three years' practical experience in laboratories connected with blast furnaces and steel works; can analize iron ores, iron, steel, fuels, slags, &c.; can furnish the best of references. Address "H. C. L.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A PRACTICAL rolling mill superintendent who has had fifteen years' experience in structural, bar and rail mills, thoroughly understanding the manufacturing of iron in all its branches, is at present open for an engagement. Address "J., 405," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MARRIED MAN who has had ten years' experience at bookkeeping, labor accounts, cost sheets of jobs, &c., in general machine shop, boiler shop and foundry business; thoroughly reliable and acquainted with the business, clerically, in all its details. Address "CLERICAL," office of *The Iron Age*, 66 and 68 Duane street, New York.

AN EXPERIENCED Mechanical Engineer, thoroughly educated with shop and mill practice, desires a position; familiar with steel works, blast furnaces, modern machine tool design, steam plants, and handling of materials, simple methods of office management and shop accounts; ample references of ability and thoroughness. Address "SAFE PRACTICE," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

POSITION by an experenced Traveling Salesman, who has trade and the acquaintance of all the large buyers and purchasing agents of railroads, hardware and machinists' supply trade. Address "M. M. A.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A YOUNG MAN with a thorough understanding of both Hardware and Paint and Oil trade is desirous of a position as traveling salesman or buyer; eight years' experience; can furnish best of reference and security. Address "H. C.," P. O. Box 98, Rochester, N. Y.

A CHEMIST of experience and ability would like a position at a steel works or blast furnace as Chemist; has had experience at both and can furnish excellent references. Address "E. X.," office of *The Iron Age*, 66 and 88 Duane St., New York.

POSITION to take charge of Hardware Manufactory; thoroughly posted in all its details, and a practical mechanic; good reference. Addr ss "POTTS," office of *The Iron Age*, 66 and 68 Duane St., New York.

YOUNG MAN thoroughly proficient in Rolling Mill office work desires position where integrity and experience will be recognized; first-class references from iron manufacturers and from present employers as pay-master and having charge of and preparing all orders for mills. Address "PROFICIENT," office of *The Iron Age*, 66 and 68 Duane St., New York,

MECHANICAL ENGINEER, scientifically educated and with several years' experience of an unusually varied character, and who posesses business and executive ability of a high order, is at liberty to make an engagement in a responsible position in any part of the world. Address "E. Y. T.," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

POSITION as superintendent of wire nail and wire mill, rolling mill or tack factory; 25 years' experience in building, erecting and superintending above branches. Will guarantee unexceptional testimonials, and build the best machinery in the U. S. for entire outfit of above mills. At present superintendent of large mills. Address "SMITH," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MAN of 30 years' experience as Superintendent would like to have a situation; knows all about mining and separating ores and erecting machinery; 4 years superintending charcoal furnace; 14 years at one place; had charge of 50 to 90 men; no objection to go outside of Pennsylvania; first-class references. Address "SITUATION," Box 52, Fleetwood P. O., Berks Co., Pa.

BY A FIRST-CLASS machinist, as foreman or any responsible position where ability will count; experienced in building marine and stationary engines, hydraulic machinery and rolling mill work; can handle men to advantage and good draughtsman; vicinity of New York preferred. Address "ENERGETIC," Box 40, office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, pipe mill machinery, engines and boilers, roof construction, sugar machinery, &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

TO SHEET BRASS MANUFACTURERS.—A man with twenty two years' experience in the sheet brass and copper manufacture desires to connect himself with an established works as superintendent; has had thorough experience in the detail and management of all the departments of rolled sheet brass manufactures; he has studied the economies and mechanical problems connected therewith, he can give the best of recommendations as to his qualifications. Address "MANAGEMENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGHLY practical Hardware Man of 15 years' experience, most of the time buyer and correspondent, would like a situation with some first-class hardware house; acquainted with all details of a large business; 37 years' old; energetic and systematic in all work; unquestionable references. Address "OLCUTT," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SITUATION as foreman of foundry; am well posted in all foundry practice. Address "FOREMAN," Office of *The Iron Age*, 59 Dearborn Street Chicago.

BY JANUARY 1st, a position by a practical machinist accustomed to handling large bodies of men on engine work and machine tools; has traveled very extensively for eight years in and out of the U. S., in the interest of a well known Engine Co.; is well up in high speed and compound engines for electric light and street railway work and can make estimates on the same, including installation; Pacific Coast preferred. Address "P. T. H.," office of the *The Iron Age*, 66 and 68 Duane St., N. Y.

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An American Geological Railway Guide, giving the geological formation of every Railway Station, with altitude above mean Tide-Water, notes on interesting places on the Route and a Description of each of the formations. By JAS. MACFARLANE. Second edition, revised and enlarged. 12mo, cloth.....$2.50

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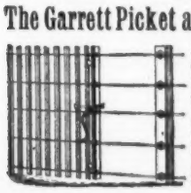
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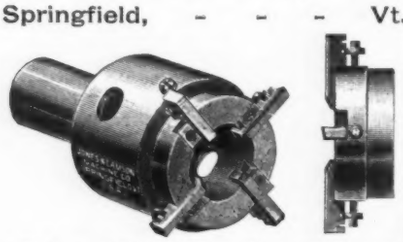
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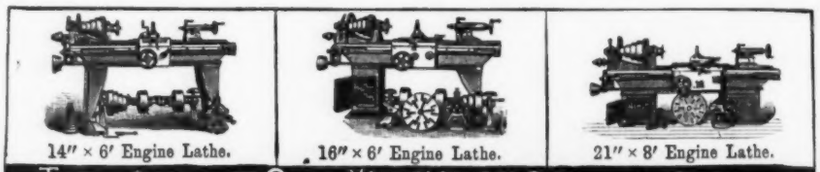
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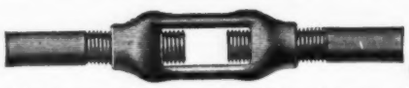
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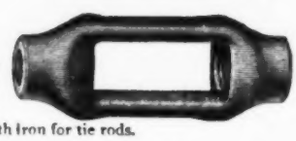
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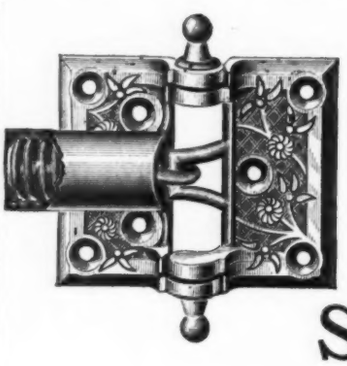


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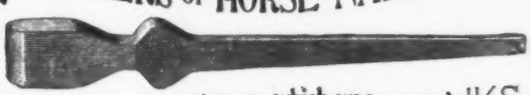
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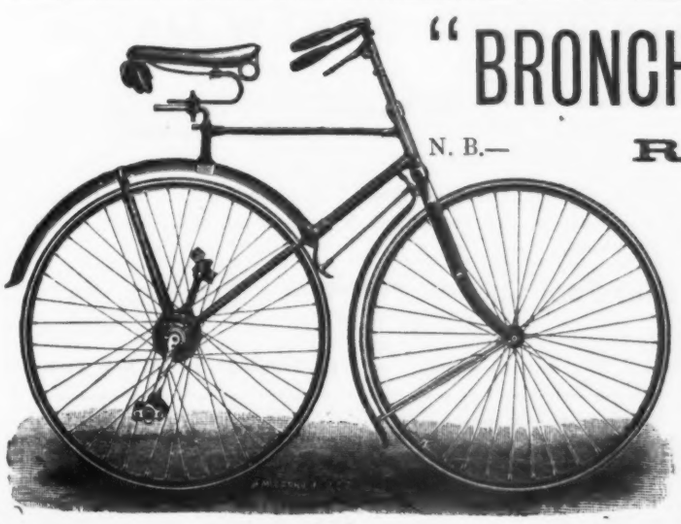
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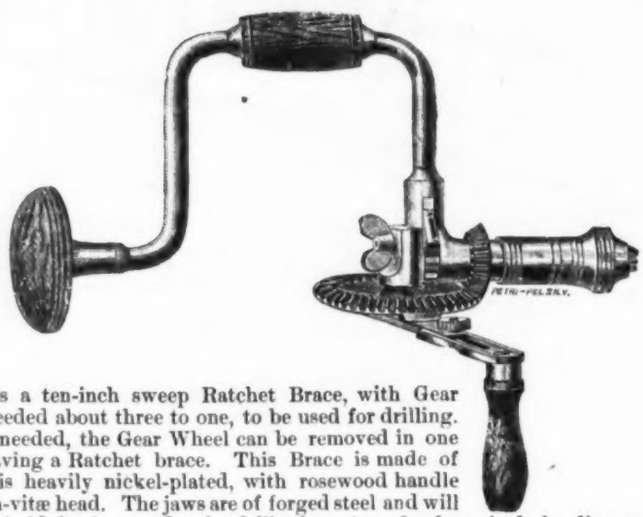
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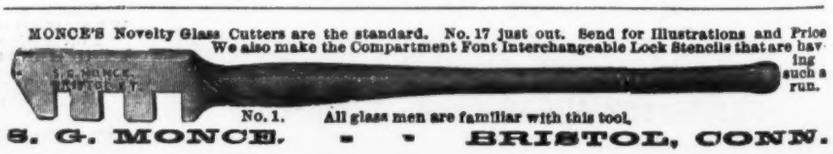
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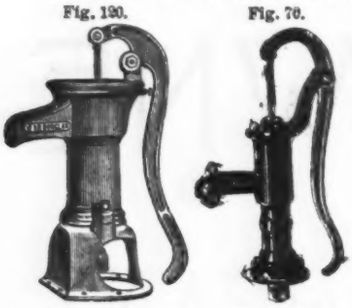
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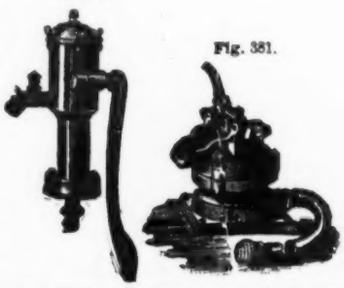
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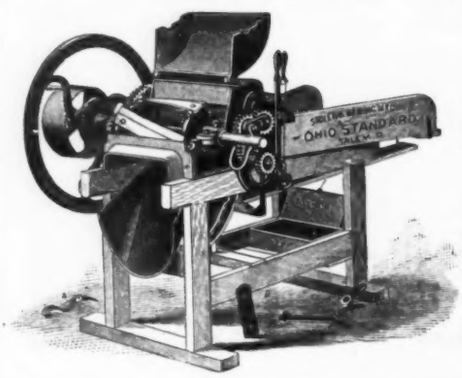


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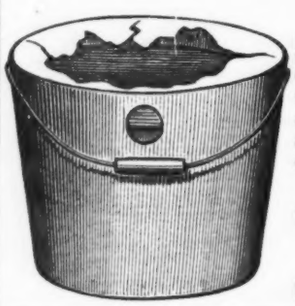
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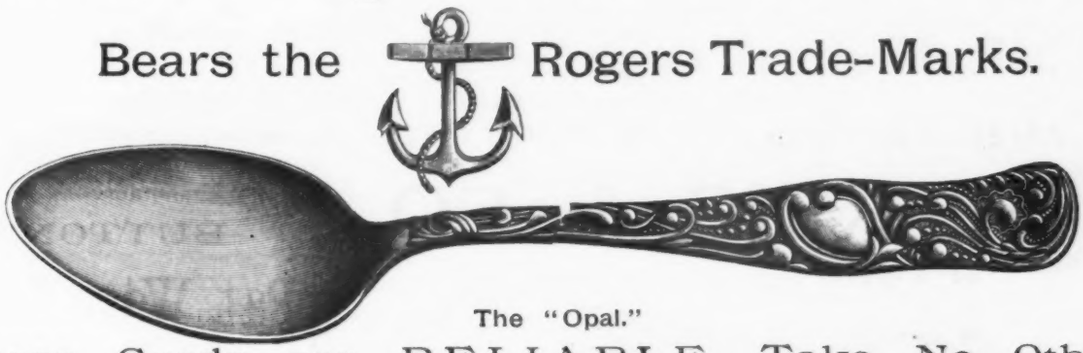
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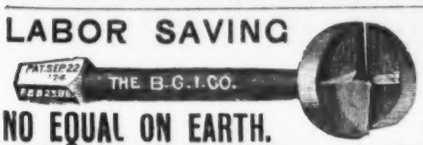


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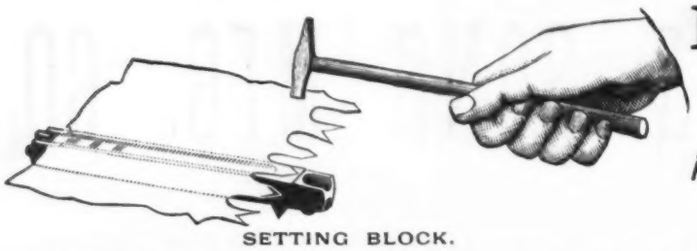
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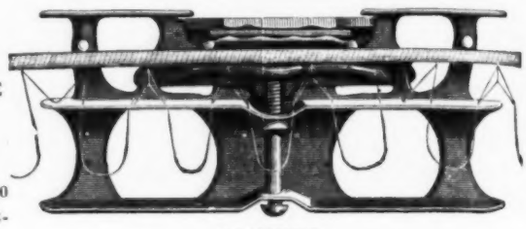
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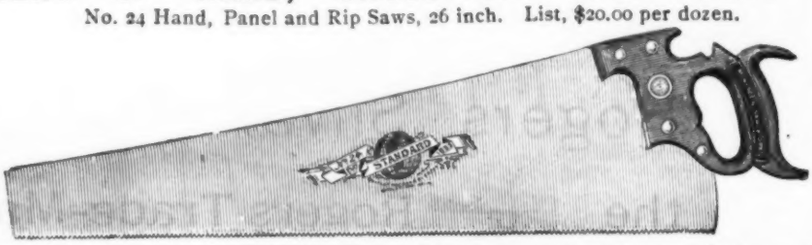
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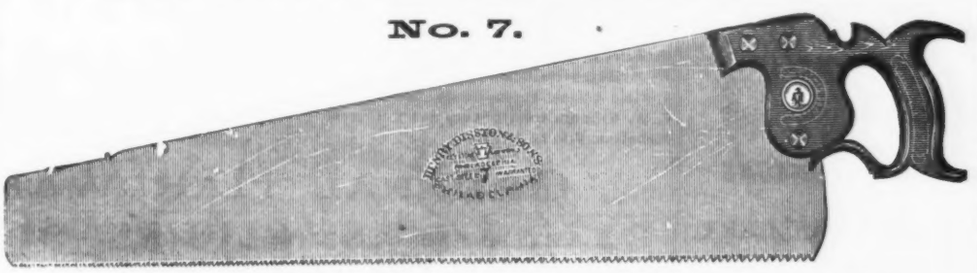
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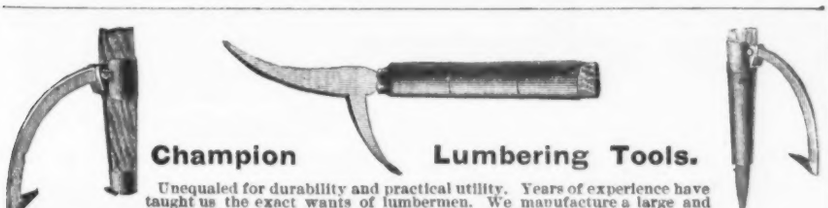
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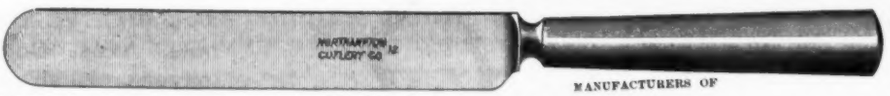
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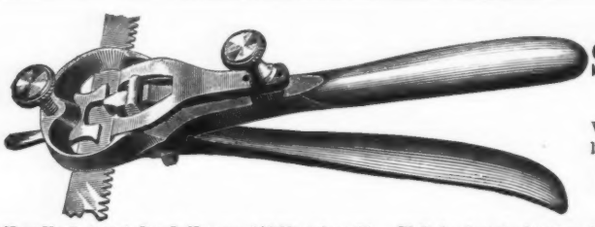
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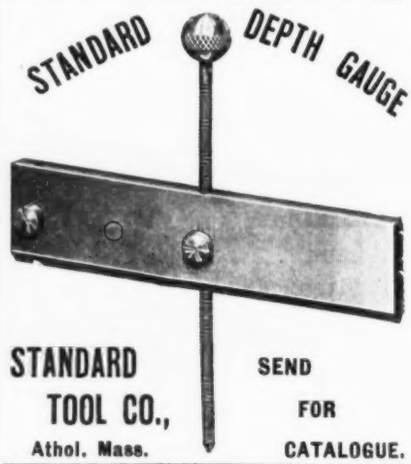
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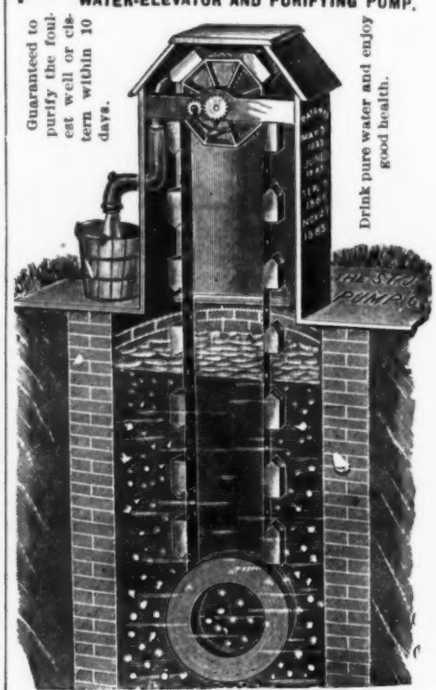
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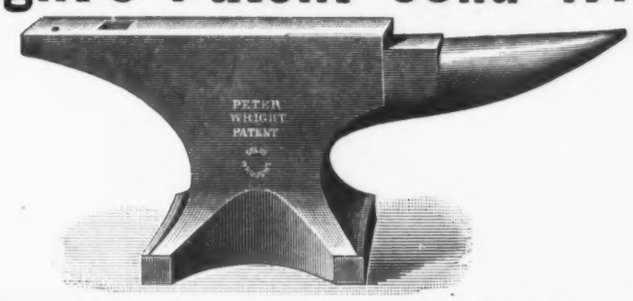
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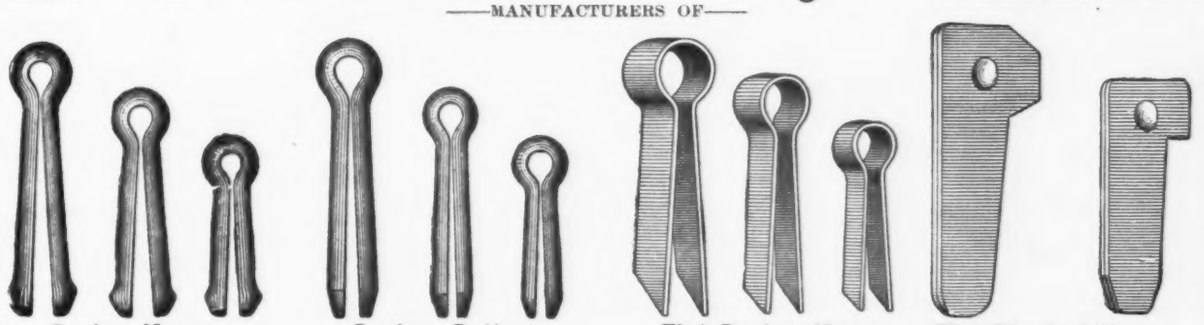
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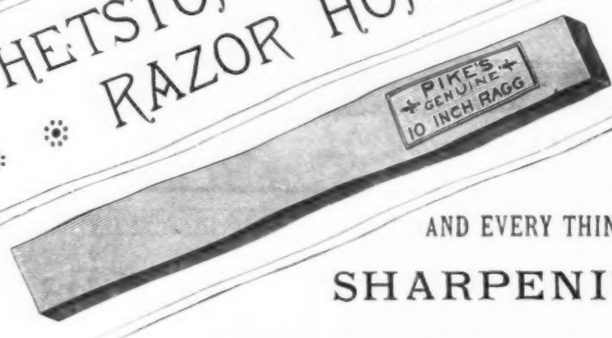
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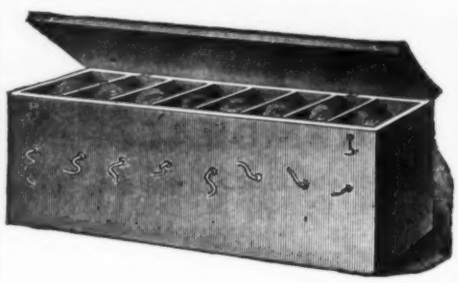
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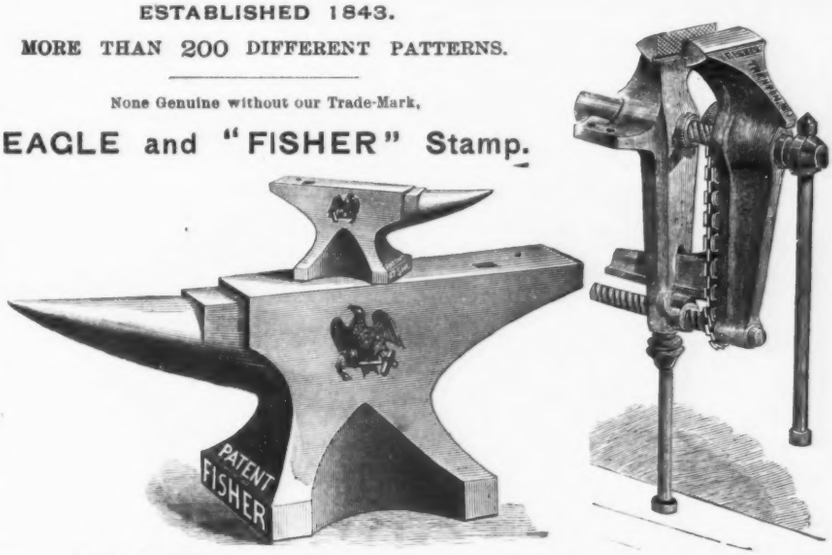
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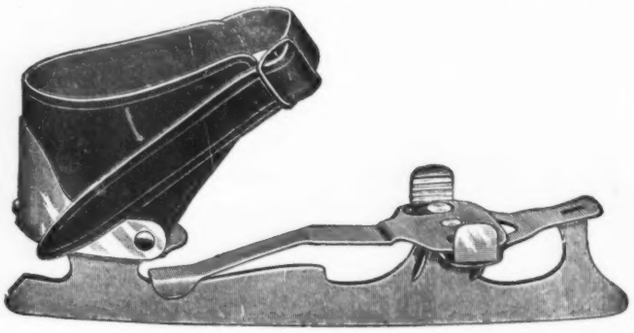
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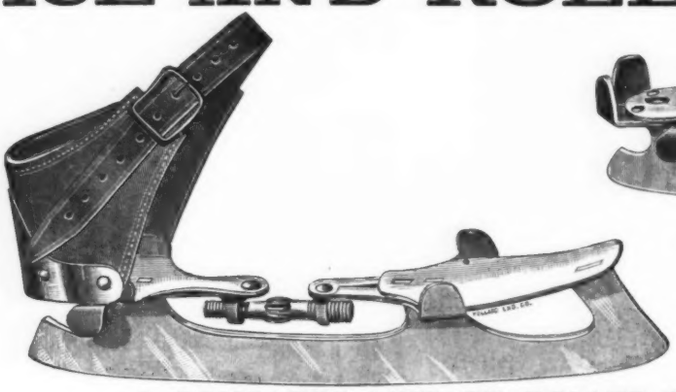
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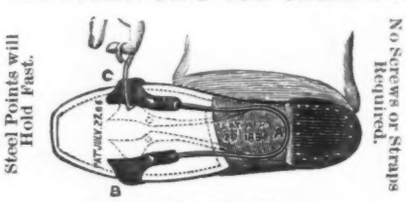
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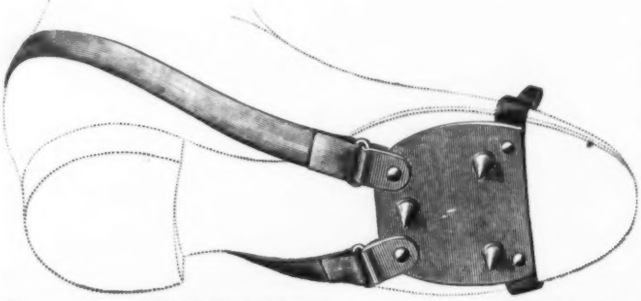
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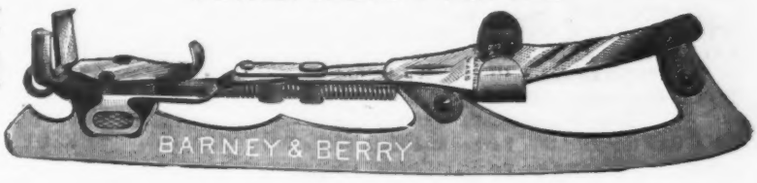
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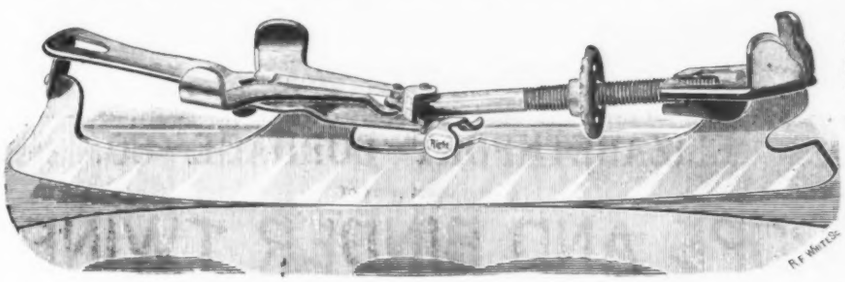
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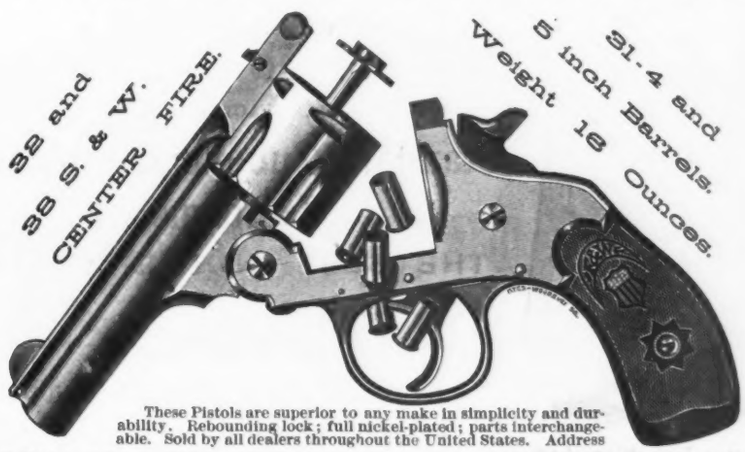
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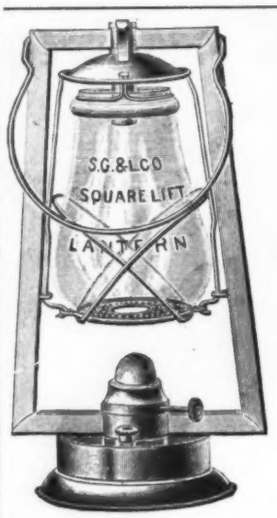
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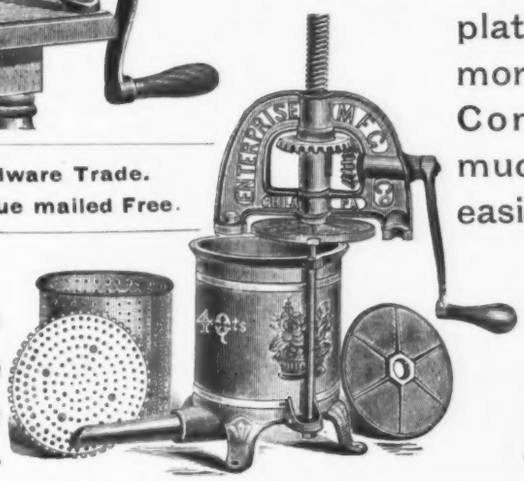
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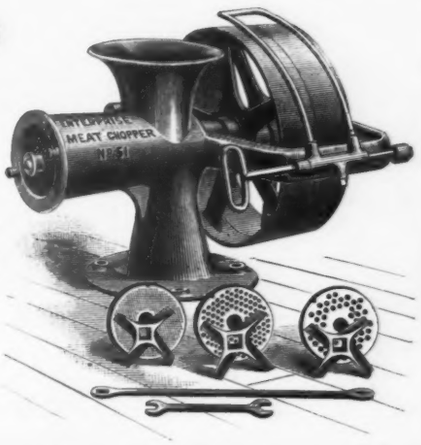
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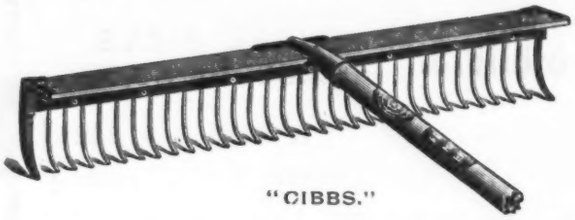
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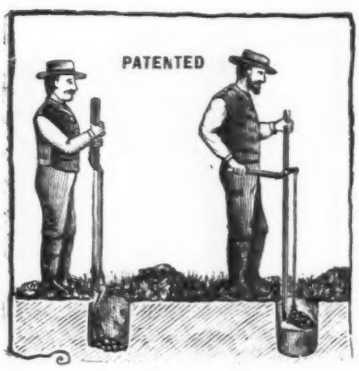


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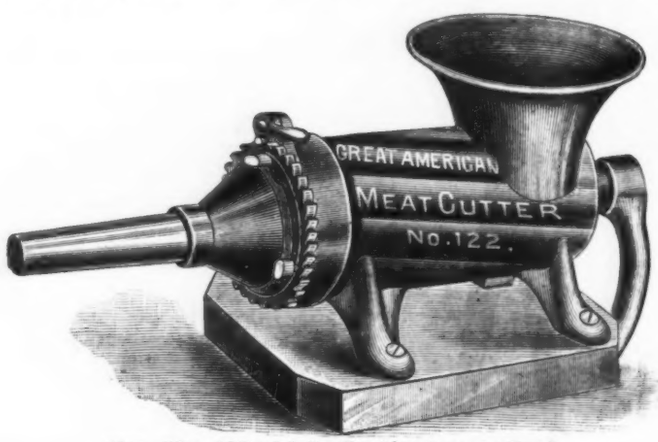


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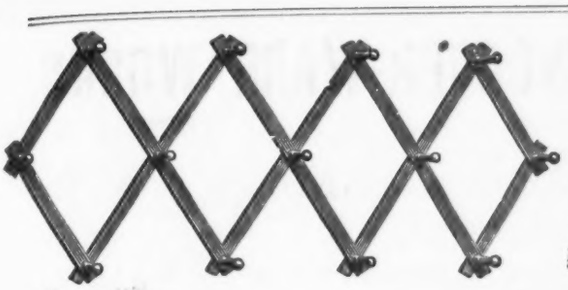
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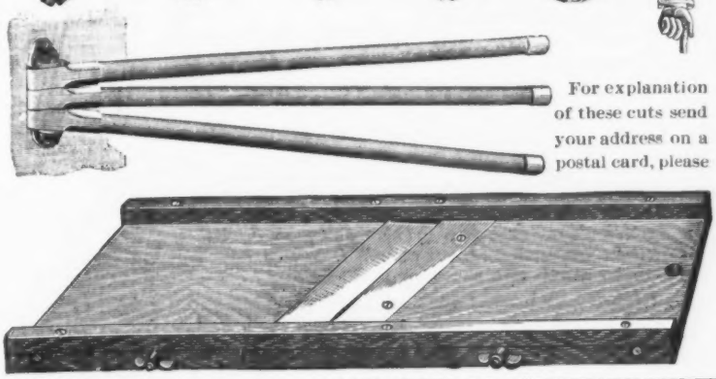
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"Empire" Cold Handle Steel Spiders.

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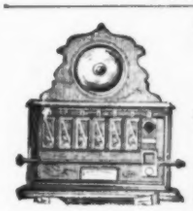
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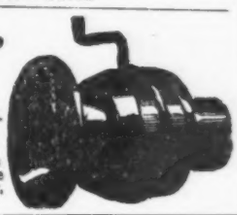
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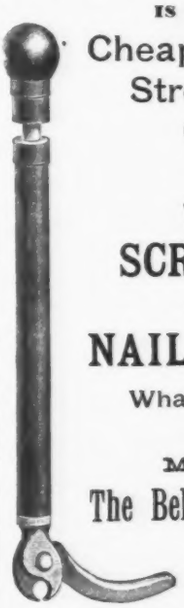
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All One Piece.

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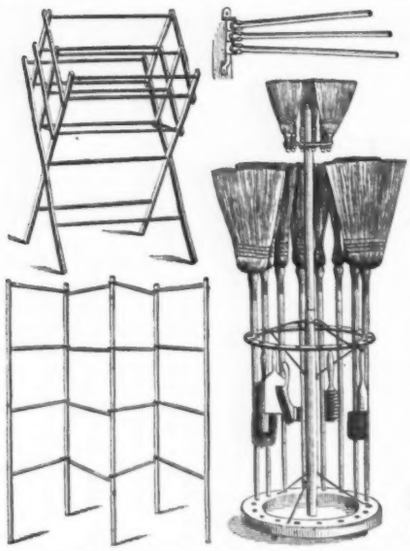


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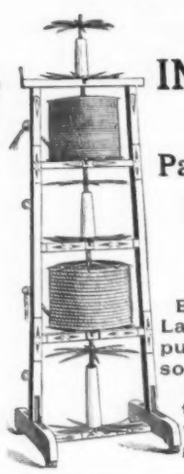
INDIANAPOLIS, - IND.,

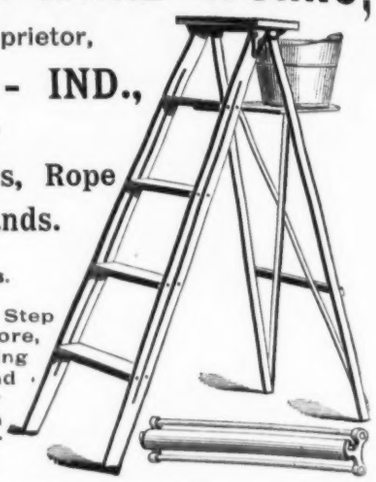
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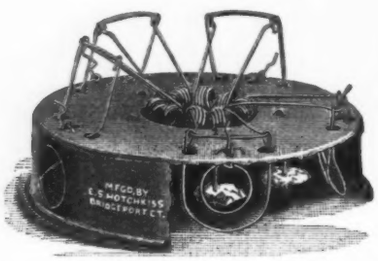
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Patent Rat and Mouse Traps.

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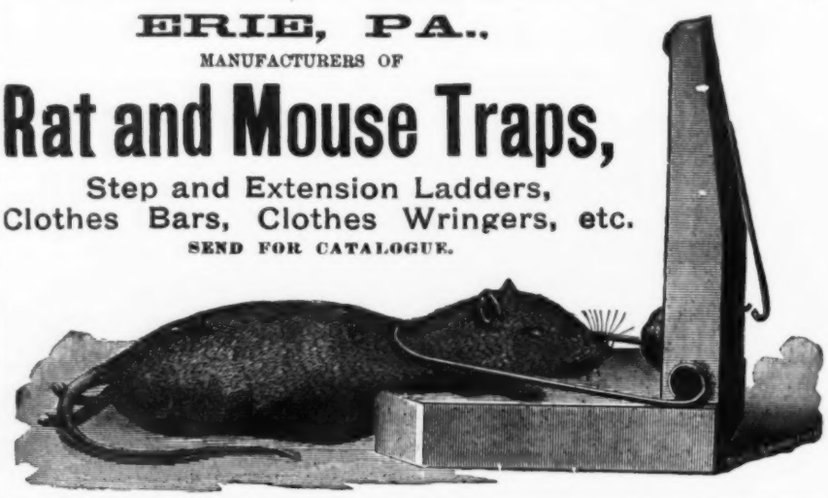
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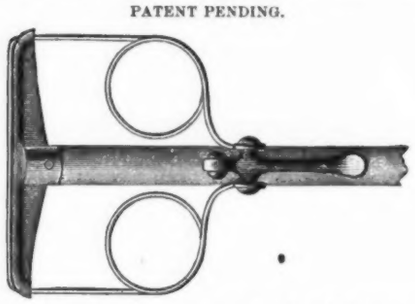
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THESE cards cover the lines having a large variety of sizes or numbers, save marking each package or article, in Retail stores, and are convenient for use in Wholesale Sample Rooms. They secure correct and uniform selling prices, for large and small buyers, save time, and are intended for years of constant use. Hence, no hardware dealer can afford to do without them, or spend the time to write and rule out cards by hand. They are printed in distinct type on the best paper, appropriately ruled with blue cross lines and red down rulings, for noting in pencil—List, Cost, Jobbing and Selling prices—as in specimen headings, shown herewith. Card A is mounted one side and B the other side of a tough, heavy card board, especially adapted for this use, protected on the edges by being *cloth-bound*, which saves framing. Two-thirds of them are 3 x 13½ inches. This size has been found convenient for hanging on a pilaster finish, or on any narrow surface, without hiding the goods. To hang or chain up each card, there is firmly inserted through the nickel-plated eyelet about 5/16 inch inside diameter. The comparative numbers of the different makers of cabinet and padlocks, rules, levels, etc., have been carefully corrected to the date of issue and many numbers added. Most houses require 6 to 12 cards extra, of each Nos. 32 and 33, to price lines not covered by the other numbers.

PIECED WARE. [Card No. 26-A.]

DESCRIPTION.	Size or No.	List.	Cost.	Job.	Sell.
BOILERS.					
COFFEE,	7 in.				
Bailed and	8 "				
Copper Bottom.	9 "				

DESCRIPTION AND PRICES.

Card No.		Size and Price per Card.
1	A—**Bar Iron,** Weight of Round, Square and Flat, per Foot and Tire per set. Western Classification and Prices of Extras on American, Norway and Swedes. B—**Bar Steel,** All kinds and Sizes with Prices of Extras. Horse and Mule Shoes, Size, Weight, No. in Keg. Toe Calks. Cut Nails, List of Extras.	5½x18 in. 40 Cts.
2	A—**Cut Tacks,** exact size cuts. Length. Number in a lb. B—**Large Head Carpet Tacks.** Gimp and Lace Tacks. Hungarian Nails, Hob Nails, Blued and Tinned, American and Swedes. Exact size cuts shown of all the above.	3x13½ in. 30 Cts.
3	A—**Shoe Nails.** Cigar Box Nails. Copper Tacks, Double-Pointed Tacks and Cuts, Glaziers' Points and Cuts. Barbed Blind Staples. B—**Patent Brads.** Finishing Nails. Blued Clout Nails. Tinned Clout Nails.	3x13½ in. 30 Cts.
4	A—**Iron Wood Screws.**	6x16 in. 35 Cts.
5	B—**Iron Wood Screws** (contd.) Iron Machine Screws.	
6	A—**Standard Carriage Bolts.**	3x13½ in. 30 Cts.
7	B—**Standard Carriage Bolts** (continued.) Plow Bolts.	
8	A—**Machine Bolts.** B—**Standard Tire Bolts.** Round and Flat Head Stove Bolts.	3x13½ in. 30 Cts.
9	A—**Philadelphia Carriage Bolts.** B—**Philadelphia Carriage and Tire Bolts.**	3x13½ in. 30 Cts.
10	A—**Square and Hexagon Nuts.** Wrought Washers. Size of Bolt, size of Hole, Width, Thickness, number in 100 lbs. B—**Coach or Lag Screws.** Superior and Norway Axle Clips.	3x13½ in. 30 Cts.
11	A—**Bright Screw Hooks.** Belt Hooks. Blake's Belt Studs. B—**Bright Screw Eyes.** Gate Hooks and Eyes. Cornice Hooks and Eyes.	3x13½ in. 30 Cts.
12	A—**Plate Casters and Bed Casters.** B—**Wrought Hooks and Staples.** Trap Door Rings. Hasps and Staples, and Staples only.	3x13½ in. 30 Cts.
13	A—**Saws.** Hand, Panel and Rip. Combination and Back. Disston's and W. M. & C.'s corresponding numbers and "Our Brand." B—**Saws.** Back, Compass, Pruning, Kitchen, Butchers' Bow and Blades. Framed Wood Saws and Blades.	3x13½ in. 30 Cts.
14	A—**Chisels.** Slicks, Socket Framing, Socket and Tanged Firmer, Corner. B—Turning Chisels and Gouges, Socket and Tanged Firmer Gouges.	3x13½ in. 30 Cts.
15	A—Cast Steel Augers and Bits. Boring Machine Augers. Jennings' Auger Bits. B—Bit Stock Drills, Gimlet Bits, German Pattern, Double Cut and Countersink. Center Bits. Clark's Expansive Bits.	3x13½ in. 30 Cts.
16	A—**Hammers.** Adze Eye, Bell Face, Joiners', Steel Face and Claw, Riveting, Farriers', Blacksmiths', Machinists', Engineers. B—**Hammers.** Tack, Masons', Sledges, Miscellaneous. **Hatchets,** Shingling, Lath, Half, Claw, Broad or Bench, Hunters'.	3x13½ in. 30 Cts.
17	A—**Files.** Bastard, Mill, Flat, Hand, Half-round, Round, Square, Knife, Warding. Second Cut, Mill, Flat, Hand, Half-round. Smooth, Flat and Hand. B—**Files.** Smooth, Half-round, Round, Cabinet, Pit Saw, Hook Tooth, Gin Saw, Band Saw, Cant, Taper, Stubb's Taper. **Rasps,** Cabinet, Wood, Shoe, Horse.	7x15 in. 40 Cts.
18	A—Rubber and Hemp Packing. Gaskets or Rings. Rubber Hose. B—Leather and Rubber Belting.	3x13½ in. 30 Cts.
19	A—**Window Glass.** List Prices and Number Lights in a Box. Also ruled columns for other Wholesale and Retail rates. B—**Sash, Doors and Blinds.** List Prices.	6x18½ in. 40 Cts.
20	A—**Hinges.** Strap, Light and Heavy. T, Light, Heavy and Extra Heavy. Hinge Hasps, Screw Hook and Strap. B—**Screw Hook and Eye Hinges.** Barn Door Hangers. Checked Back. Kidder's, Anti-Friction, Wrought Frame. Barn Door Stay Rollers, Rail, Pulls, Latches. Sliding Door Rail.	3x13½ in. 30 Cts.
21	A—**Wrought Butts.** Narrow, Loose Pin, Light Inside Blind. B—**Loose Pin Butts,** Plain, Japanned and Plated Tips.	3x13½ in. 30 Cts.
22	A—Loose Joint Butts, Plain, Japanned and Plated Tips. B—Table Hinges, Bronzed Iron Blind Butts, Brass Butts, Narrow, Middle, Broad and Desk. Width when open, given of all.	3x13½ in. 30 Cts.
23	A—**Door Bolts,** Barrel, Square Spring, Foot, Chain. B—**Door Bolts,** Flush, Neck and Miscellaneous kinds.	3x13½ in. 30 Cts.
24	A—**Screw Drivers,** Flat and Round Blade, Ratchet, Clark's. Screw Driver Bits. Countersinks, Reamers', Belt or Saddlers' Punches. B—**Rules. Wrenches.**	3x13½ in. 30 Cts.

Card No.		Size and Price per Card.
23	A—**Hooks,** Coat and Hat, Wardrobe, School-house, Harness, Clothes-line. B—**Shelf Brackets. Drawer Pulls.**	3x13½ in. 30 Cts.
24	A—**Wood Planes.** Plane Irons, Cut and Double. B—**Patent Planes.** Patent Plane Irons.	3x13½ in. 30 Cts.
25	A—**Woodenware and Baskets.** Alphabetically arranged. B—**Woodenware** (contd.) Alphabetically arranged.	7x22 in. 50 Cts.
26	A—Pieced Tinware. Alphabetically arranged. B—Stamped Tinware. Alphabetically arranged.	7x22 in. 50 Cts.
27	A—Japanned Tinware. Alphabetically arranged. B—**Granite or Agate Ironware.** Planished Ware. Stove and Hollow Ware. All Alphabetically arranged.	7x22 in. 50 Cts.
28	A—**Mortise Door Locks,** Latches, Knobs and Escutcheons. B—**Rim Door Locks,** Latches, etc.	7x22 in. 50 Cts.
29	A—Padlocks, Japanned, Wrought Iron, Bronzed Iron, Brass and Jail. B—**Complete Comparative List of Corresponding Numbers of Padlocks,** Mallory, Wheeler Co., Wm. Wilcox Mfg. Co., Russel & Erwin Mfg. Co, Norwich Lock Mfg. Co., Nimick & Brittain Mfg. Co. Revised to July, 1885.	6½x22½ in. 50 Cts.
30	A—**Cabinet Locks,** Drawer, Chest, Cupboard and Trunk. Cabinet Keys. B—**Complete Comparative List of Corresponding Numbers of Cabinet Locks,** Eagle, Corbin, Parker, Gaylord. Revised to July, 1885.	7x24 in. 50 Cts.
31	A—Length and number of Nails to the pound. Number of feet in a bundle of Hoop, Scroll and Band Iron. Number of feet of Wire in a pound. Coil or Cable Chain, weight per 100 feet and proof in tons. Bright Coil and Halter Chain and corresponding No. of Wire. Sash weights and line required for common sized window. B—**Miscellaneous Tables.** Showing Number of Copper Rivets and burs in a pound. Size of Skates compared with Shoes. Scale Beams, poise or weight needed for each. Brass Kettles, size, weight and capacity. Strap and T Hinges, weight and number packed in a barrel. Comparative Nos. of leading makers of Rules and Levels. Revised to July, 1885. Manilla Rope, feet in a pound, weight of coils, breaking strain, etc.	6x22 in. 50 Cts.
32	Is adapted for filling in with any line of goods. It is ruled both sides with columns headed respectively—"Description," "Size or No.," "List," "Cost," "Job," "Sell."	4x14 in. 20 Cts.
33	As No. 32, but half size, for *smaller* lines of goods.	4x7 in. 10 Cts.
34	A—Wire Nails, Exact Size Cuts. B—Wire Nails, List Prices and Number in a pound.	5½x9½ in. 25 Cts.
35	A—Gas Pipe, Black and Galvanized. List Prices, Weight per foot and number threads per inch of screw. Also Malleable Pipe Fittings *illustrated*. B—Is ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 25 Cts.
36	A—**Tin Plates and Metals.** Sizes of Tin, Number of Sheets in Box, Weight and Gauge. Block Tin, Lead, Solder, Antimony, Slab and Sheet Zinc. B—**Sheet Iron and Copper.** Iron, Common, Smooth, Galvanized, American and genuine Russia. Copper, Sheathing, Planished and Copper Bottoms and Soldering coppers.	5½x9½ in. 25 Cts.
37	A—**Malleable Iron.** *Illustrated.* Whiffletree Ferrules. Tongues, Hooks, Couplings and Plates. T and Shaft Irons. Shaft, Body, Perch and Neck-yoke Loops. B—**Malleable Iron.** *Illustrated.* Pole and Neck-yoke Tips. End or Tail Board Plates. Washers and Nuts. Stake Rings and Irons. Wagon Box Spring Irons. Check and Footman Loops. Corner Irons. Spring and Axle Blocks.	5½x18 in. 35 Cts.
38	A—**Malleable Iron.** *Illustrated.* Axle Yokes. Wear Irons. Wrenches. Carriage Rim Bands. Oar or Row Locks. B—**Malleable Iron.** *Illustrated.* Step Plates, Carriage, Wagon and Cutter Steps. Thumb Nuts. Sand Bands.	5½x18 in. 35 Cts.
39	A—**Handles.** *Illustrated.* Auger, Cross-Cut Saw, Axe, Adze, Hatchet, Hammer, Pick, Sledge. B—Is ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 25 Cts.
40	A—**Wire Cloth and Netting.** *Illustrated.* Plain, Painted and Galvanized. B—Is ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 25 Cts.

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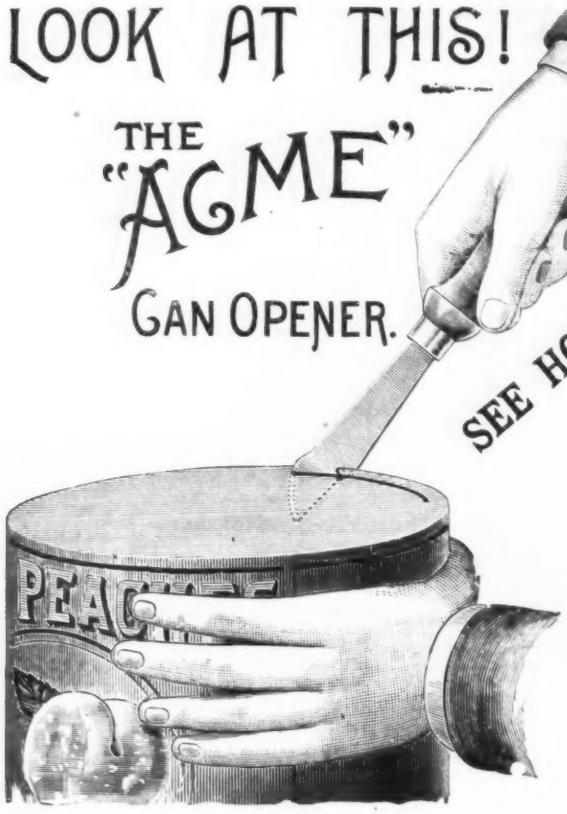
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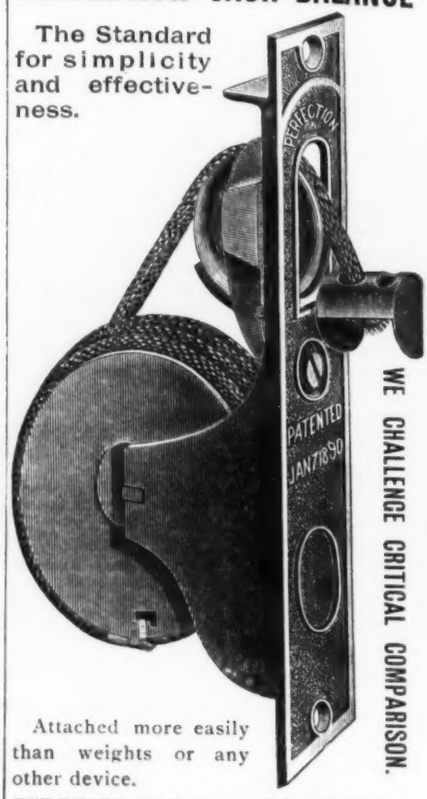
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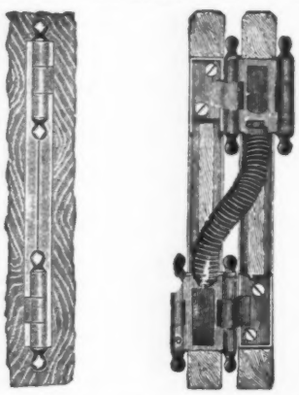
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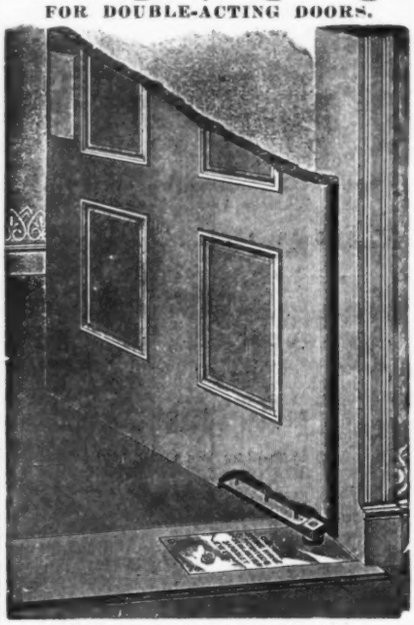
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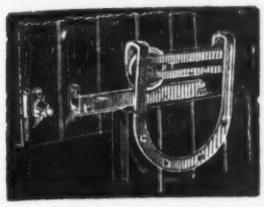
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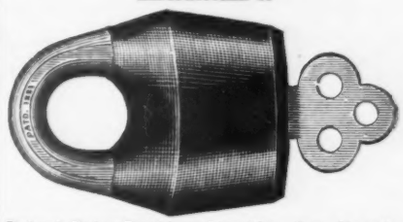
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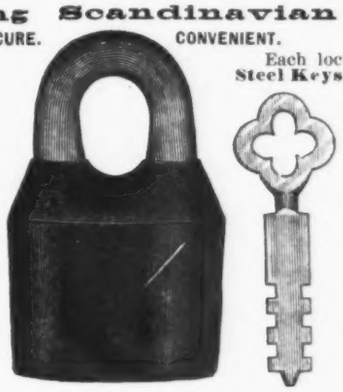
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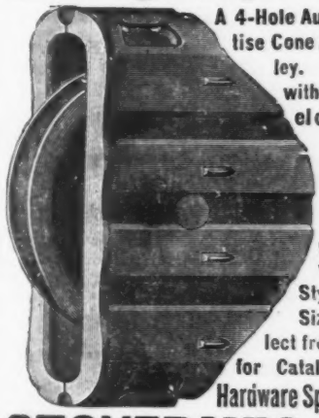
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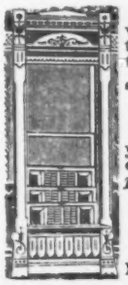


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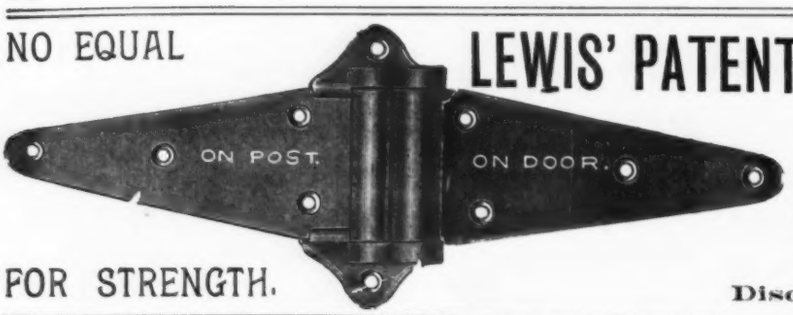


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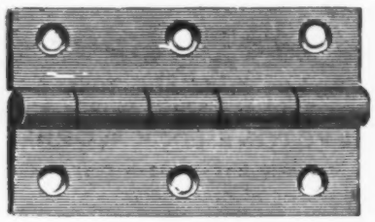
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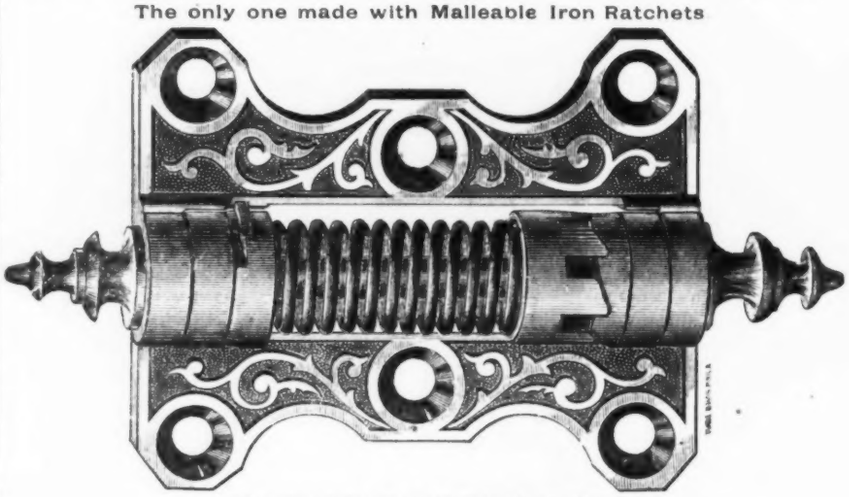
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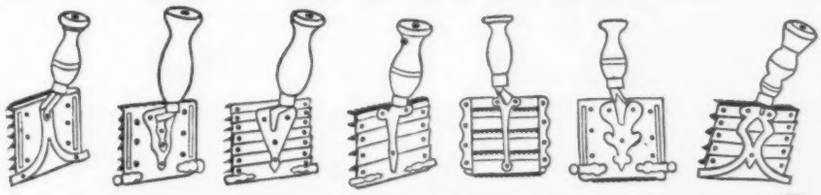
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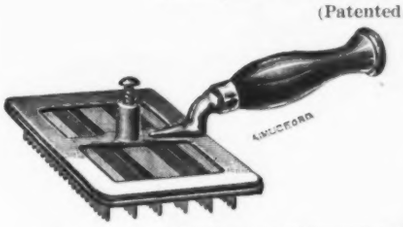
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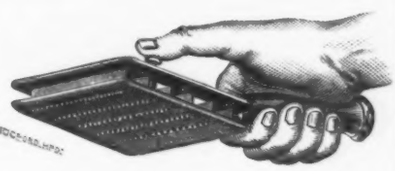
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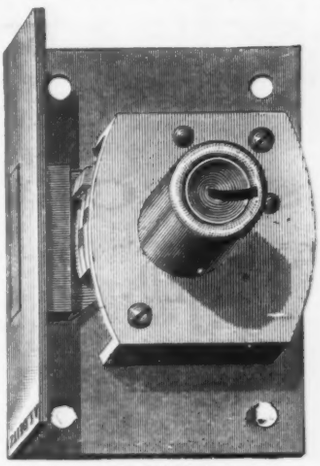


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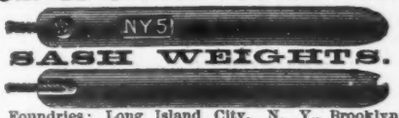
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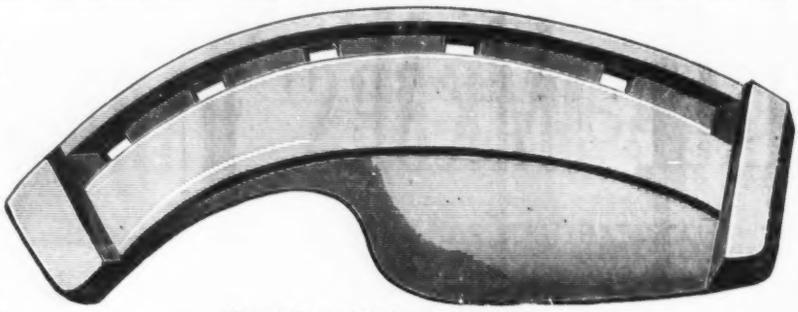
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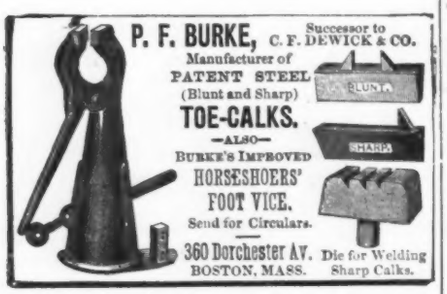
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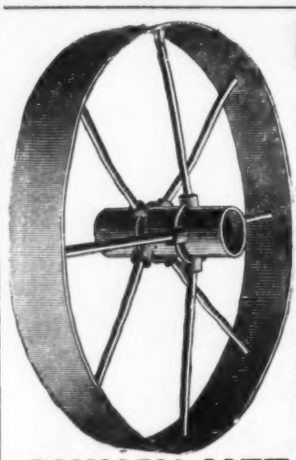
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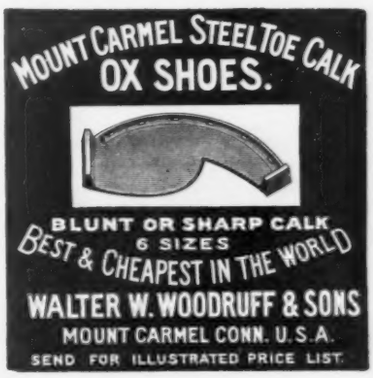
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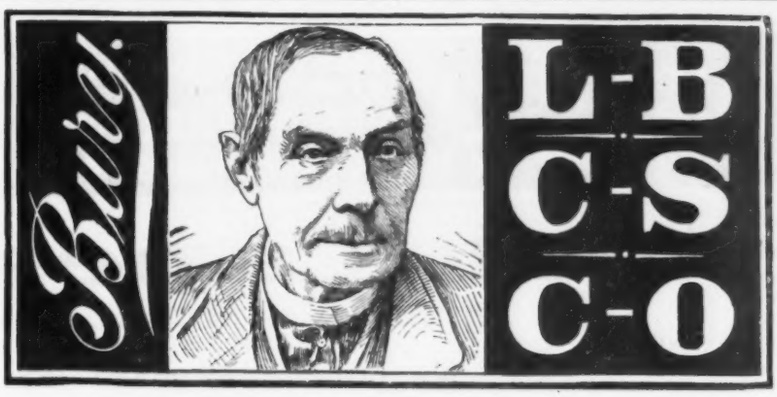
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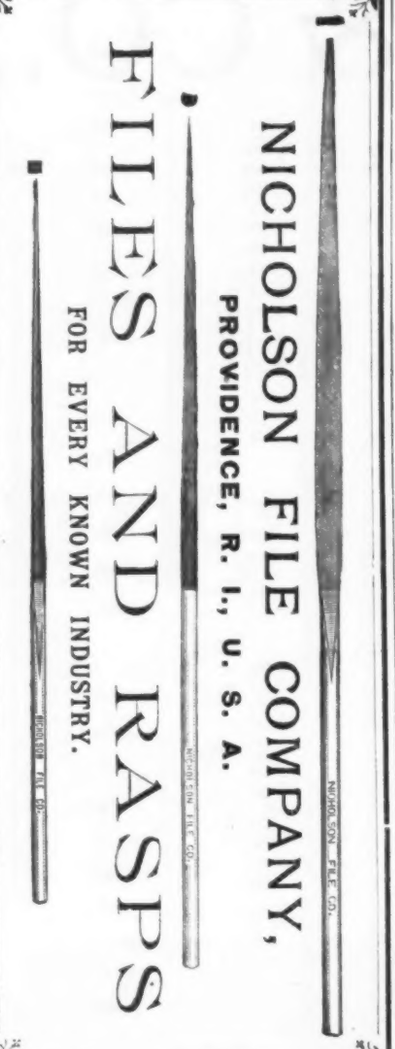
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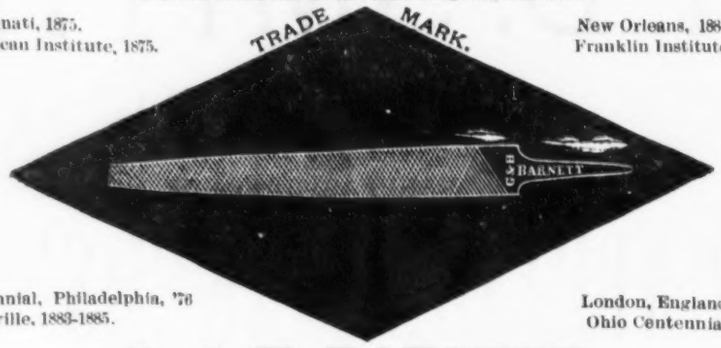
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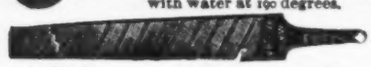
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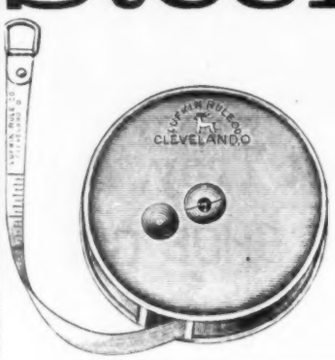
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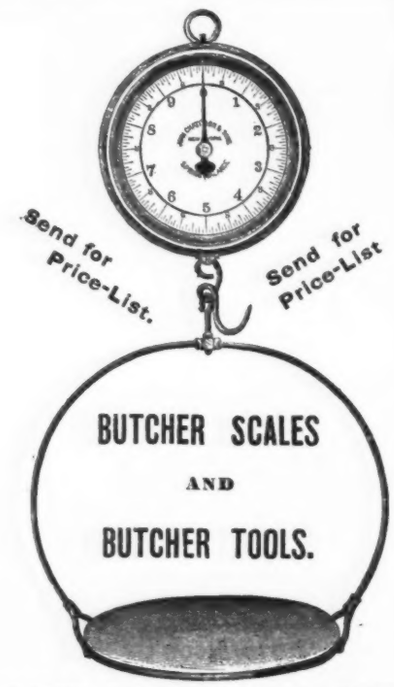






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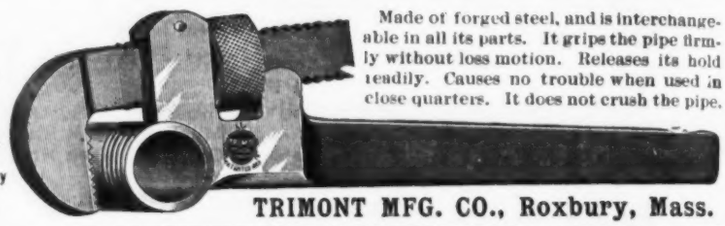
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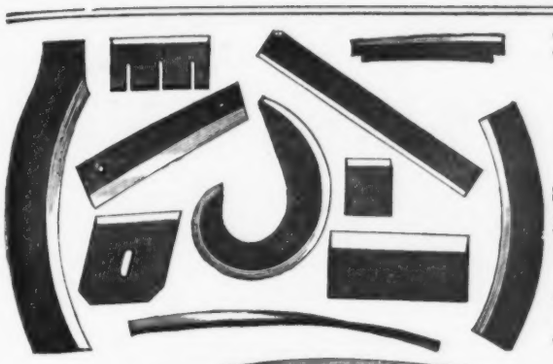
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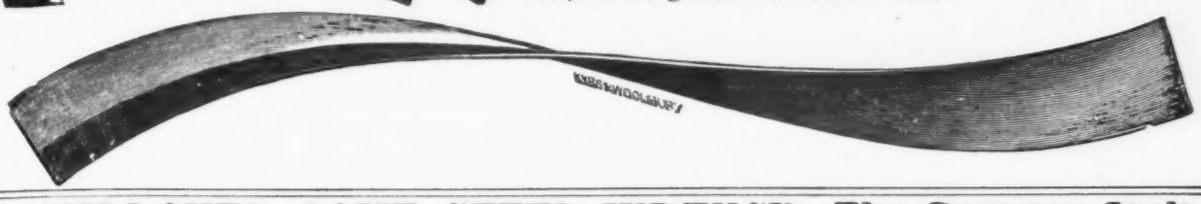
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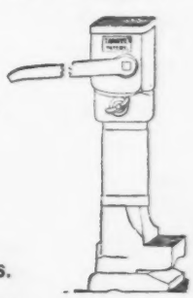
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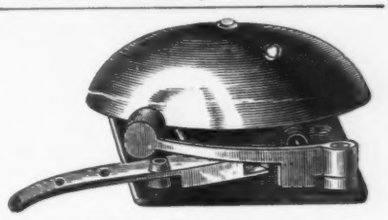


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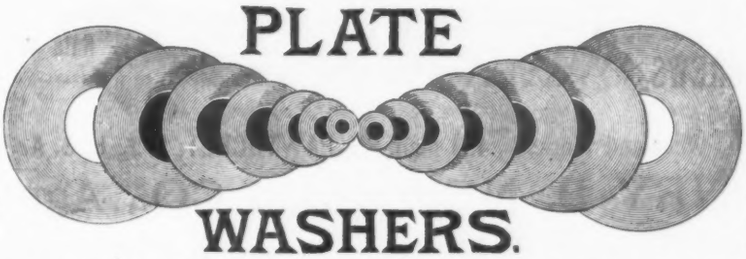
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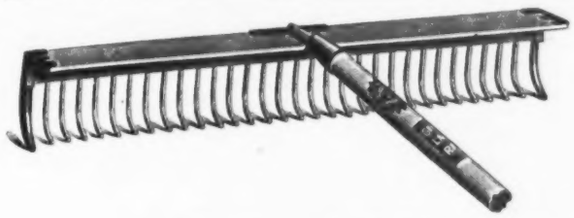
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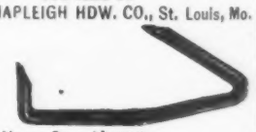
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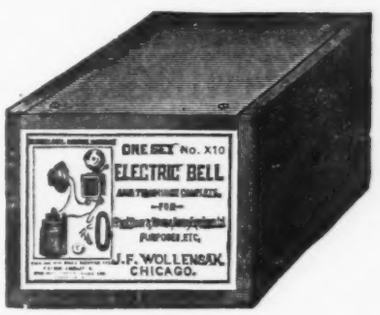
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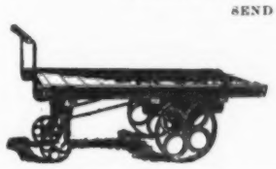


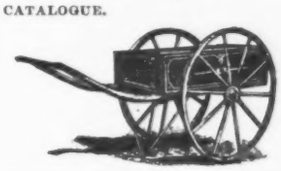
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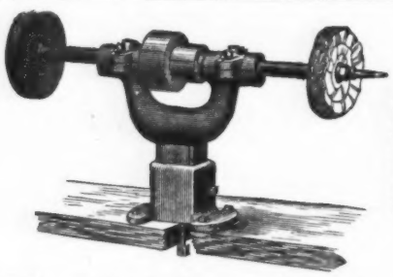
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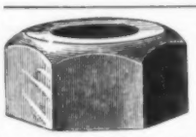
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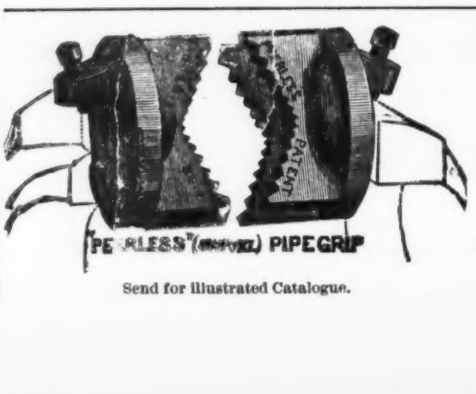




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N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Foundry & Machine Dept., Harrisburg, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fence Machines.
Garrett, S. H., Mansfield, Ohio.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick. *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

(See Alphabetical Index, Page 96.)

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glue.
Russia Cement Co., Gloucester, Mass.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Mach. Co., Providence R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes, Pittsburgh, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. & Co., 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.
Tommins & Adams, 116 Chambers, N.Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit, Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Brown, J. H. & Co., Chicago, Ill.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails. *Makers of.*
Ausable Horse Nail Co., 4 Warren, N.Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoe Cushions.
Hale, B. S. & Son. Malden, Mass.

Horse Shoes, *Makers of.*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.
Waller, Geo. A., Seneca Falls, N. Y.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Ettinger, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Cincinnati Corrugating Co., Piqua, O.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Gibbs Mfg. Co., Canton, O.
Graham, John H. & Co., 113 Chambers St., N. Y.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'k's, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlin's Sons, Thos., Allegheny, Pa.
Crufkshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fairmount Mch. Co., Philadelphia, Pa.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. P., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. Fdy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Charlestown, W. Va.
Pittsburgh, Kan.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Mop Sticks.
Peabody & Parks, Troy, N. Y.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Chantrell Tool Co., Reading, Pa.
Hagen & Reid, W. Troy, N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Reed & Prince, Worcester, Mass.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Washington.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Barrington & King Perforating Co., Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio
Graham, Jno. H. & Co., 113 Chambers, N. Y.

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Power Punches and Shears.
Ferracute Mch. Co., Bridgeton, N. J.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, O.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y,

(See Alphabetical Index, Page 96.)

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Refrigerators.
Grand Rapids Refrigerator Co., Grend Rapids, Mich.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Jones & Johnson, Waterbury, Conn.
Conway & Henderson, 105 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron F'dry, Firmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y
Perfection Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Saw Vises.
Stearns, E. C. & Co., Syracuse, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85–89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hardware Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24–27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Barney & Berry, Springfield, Mass.
Dame, Stoddard & Kendall, Boston, Mass.
Diaz, R. M. Co., Boston, Mass.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Devlin, Thos. & Co., Philadelphia, Pa.
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Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Hammers, &c., *Makers of.*
Dieuelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24–27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa.
Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 105 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Tee Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohia.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty,
Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Steel Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel
Makers.
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Wks, Indianapolis Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass
Graham, Bailey & Co., Buffalo, N. Y.
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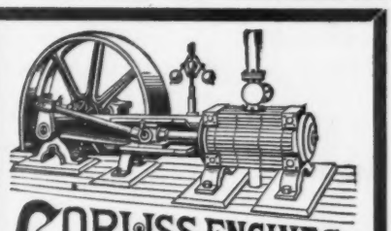
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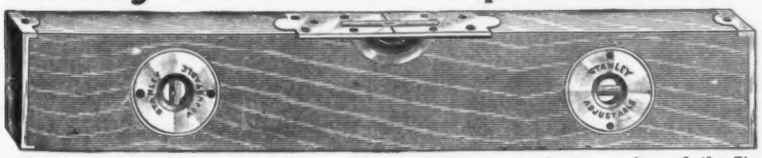
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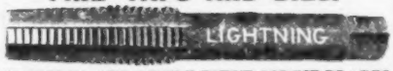
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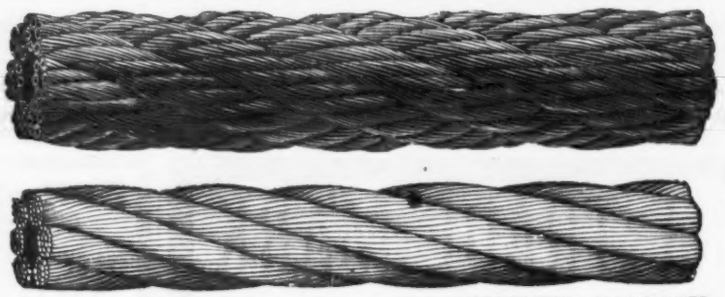
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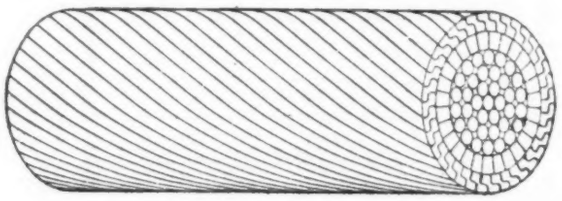
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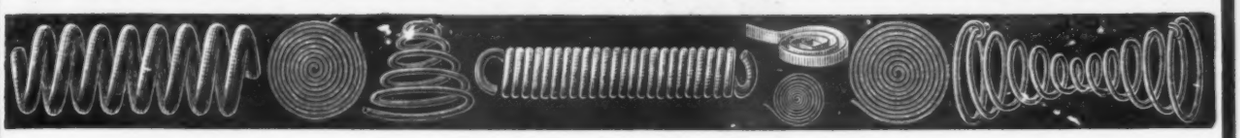
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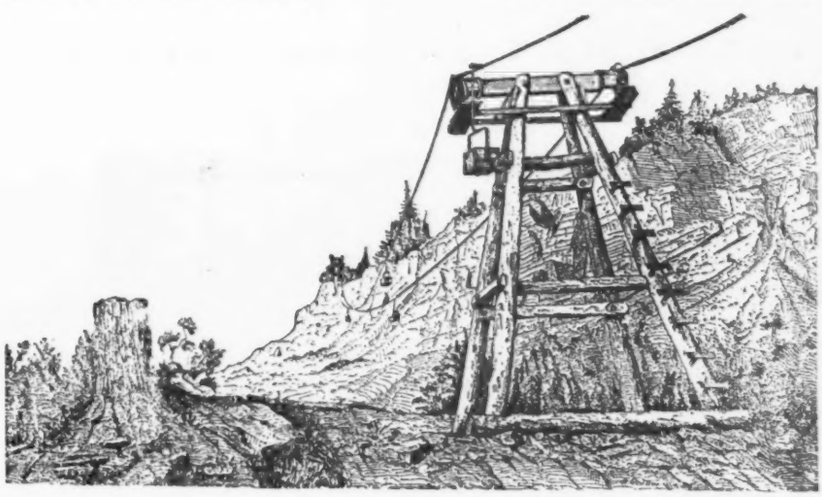
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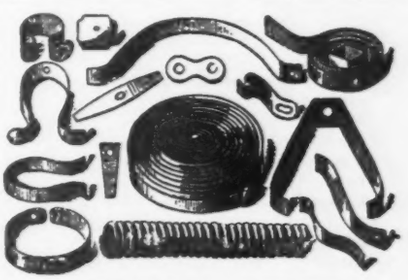
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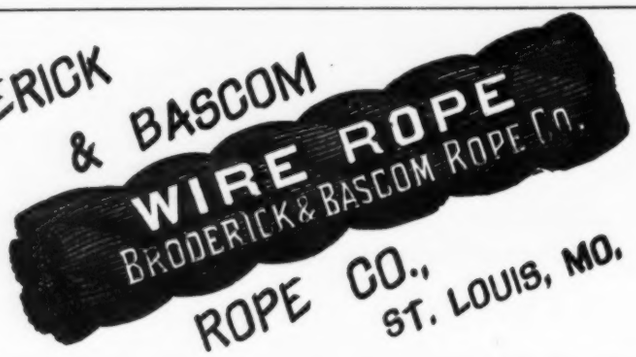
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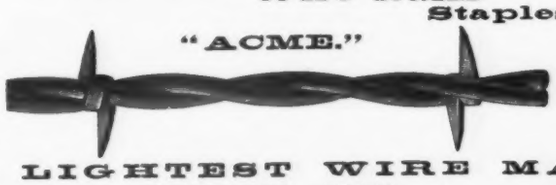
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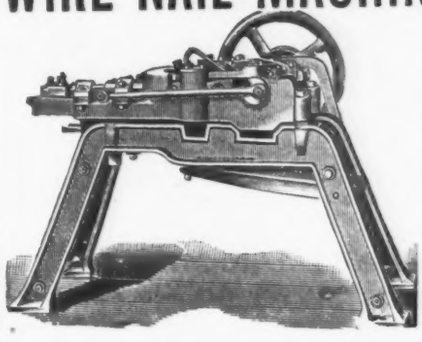
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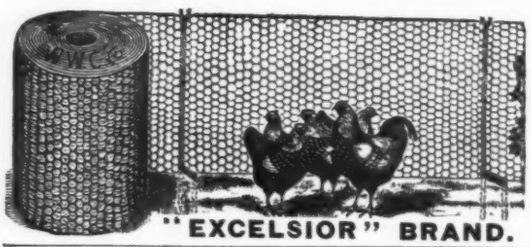
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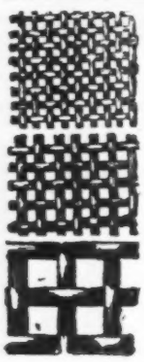


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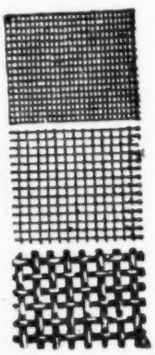
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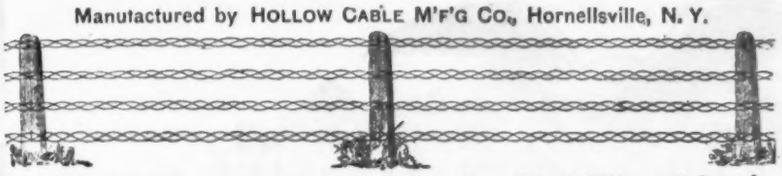
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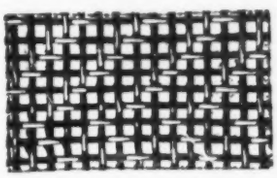


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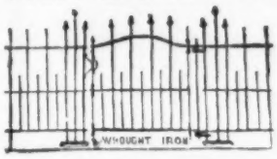
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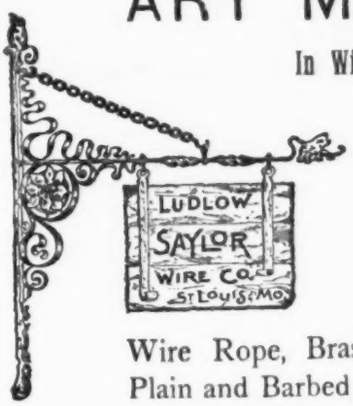
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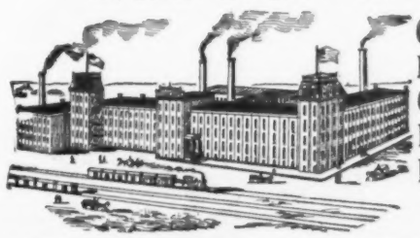
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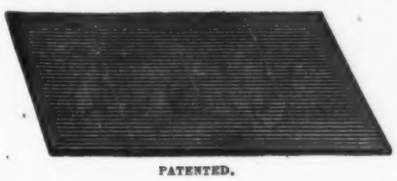
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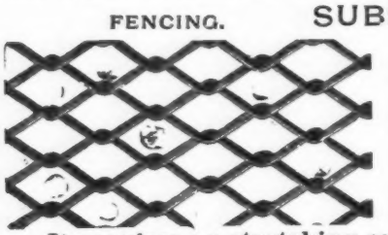
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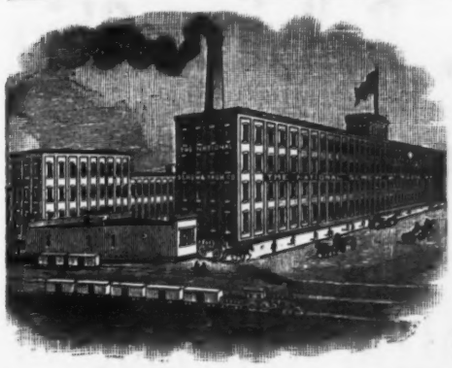
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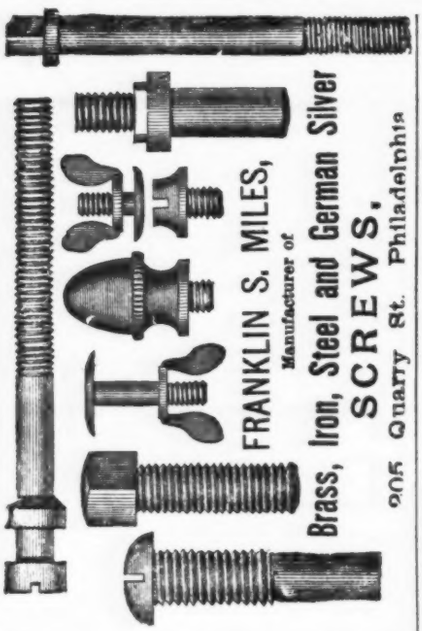
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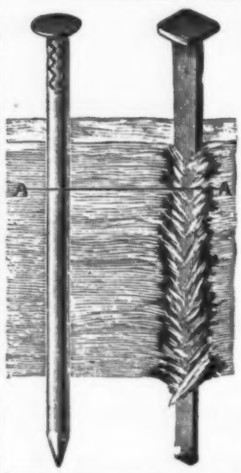
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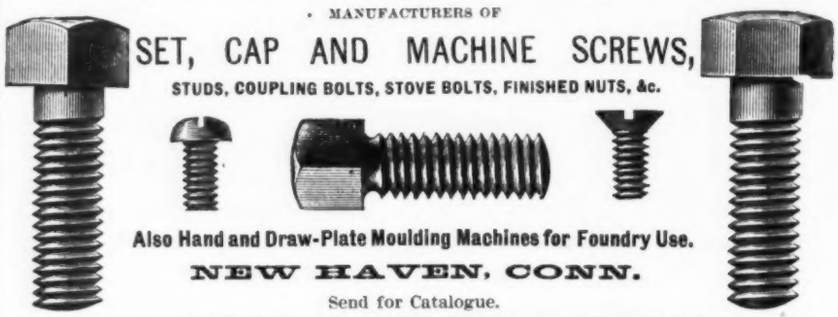
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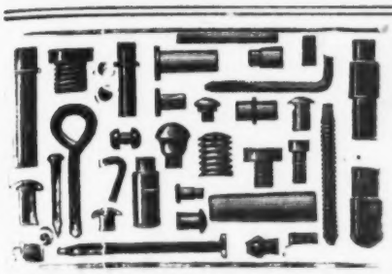
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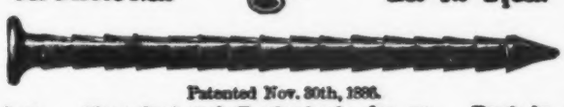
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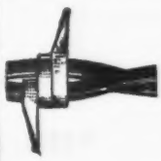
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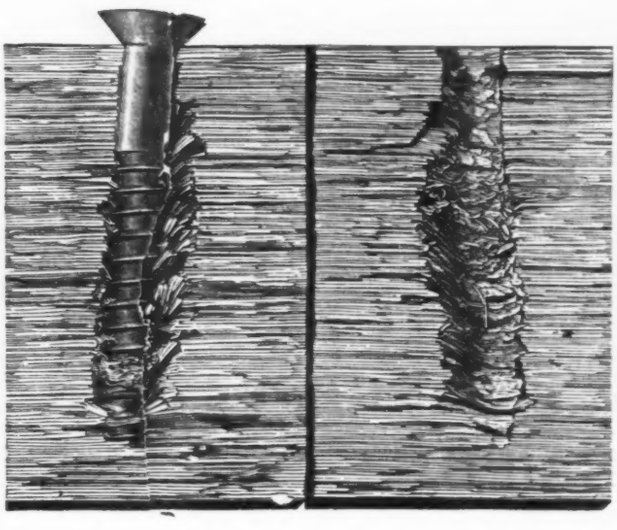
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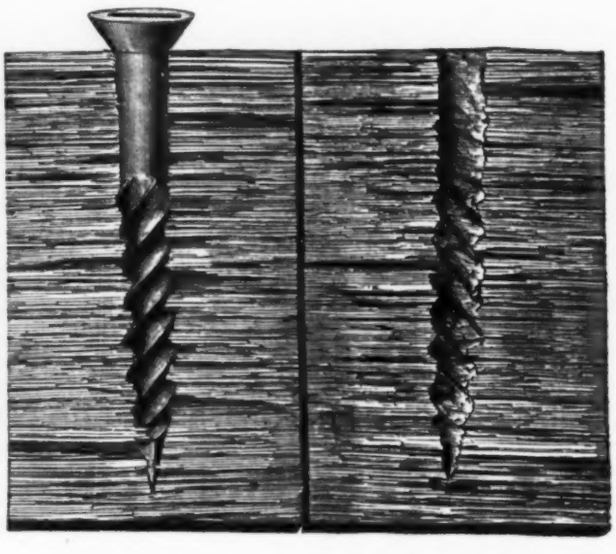
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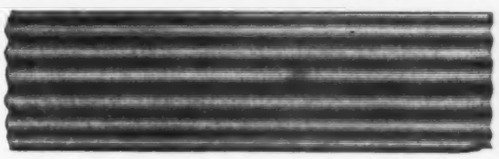
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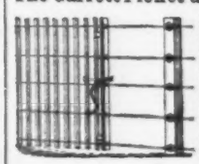
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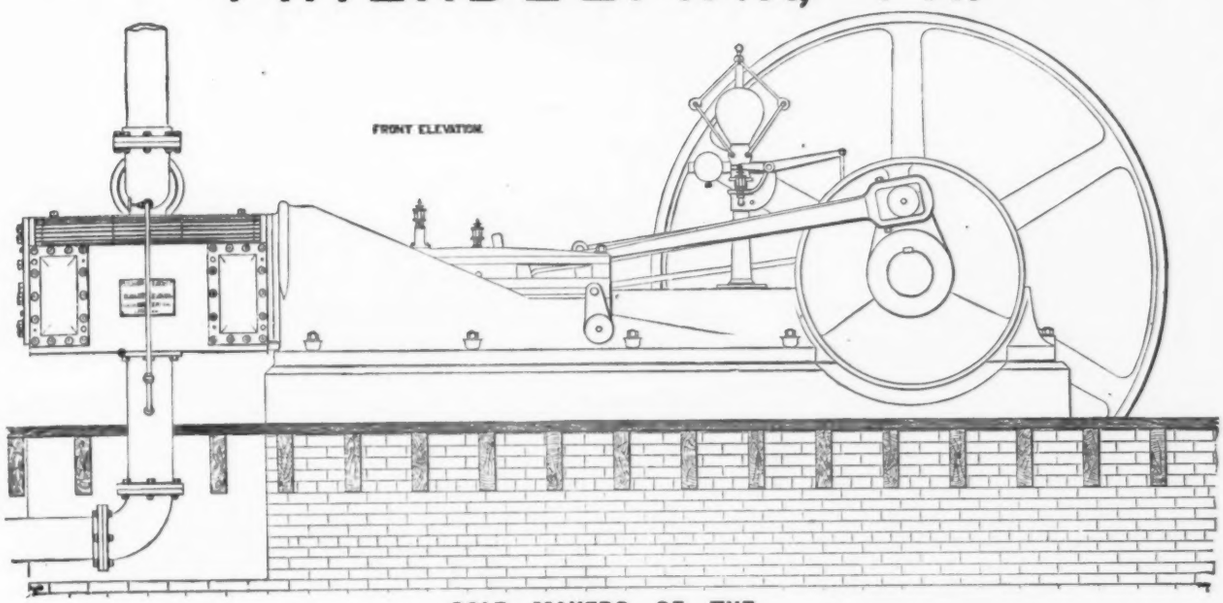
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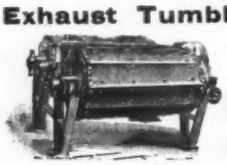
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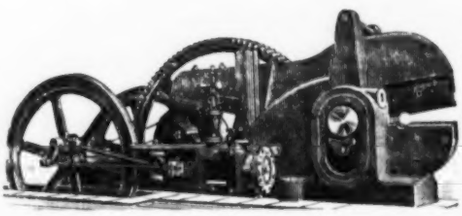
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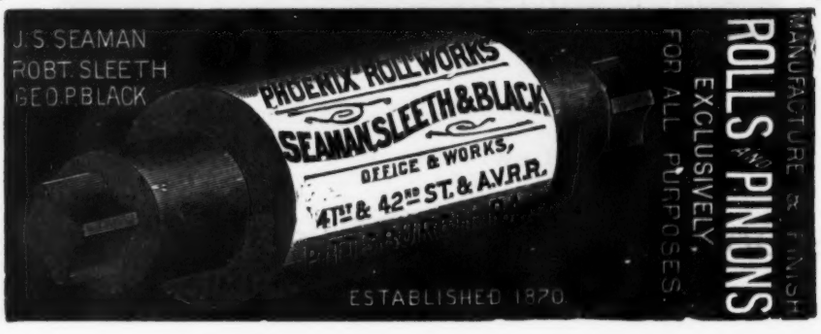
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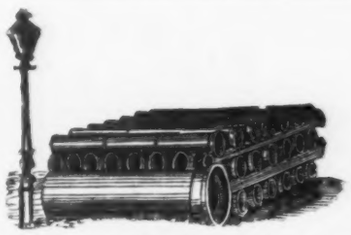
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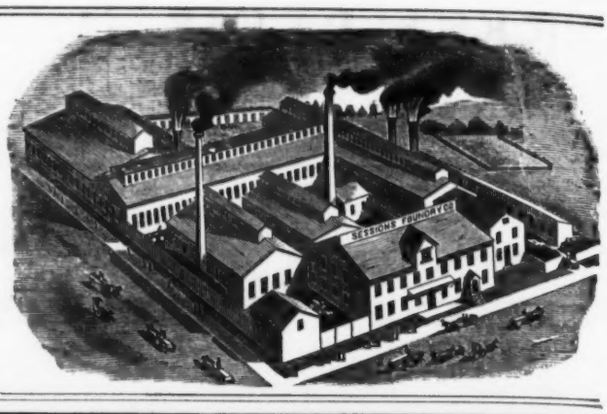
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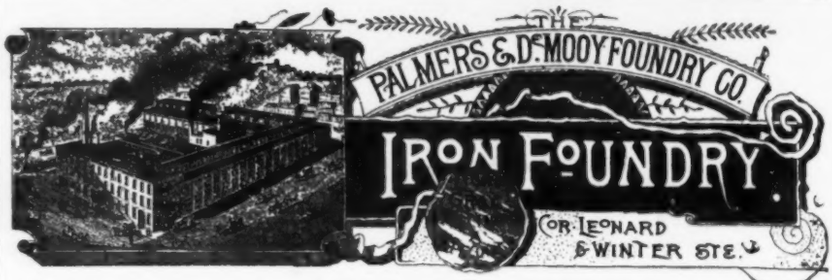
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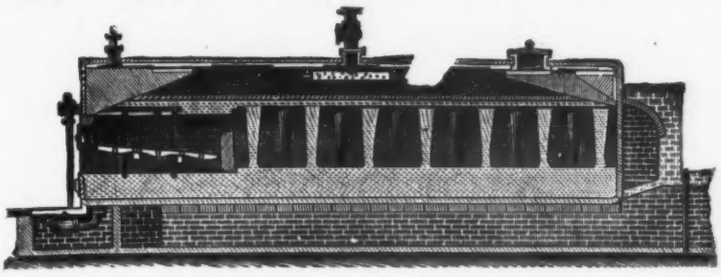
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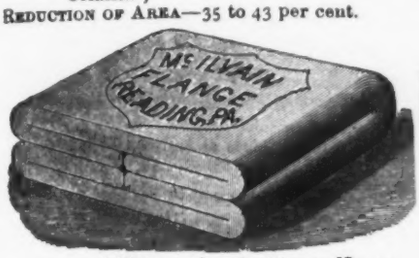
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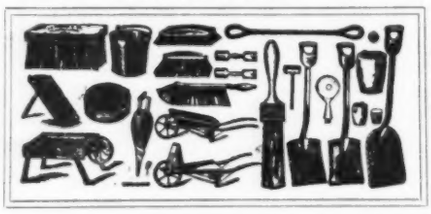
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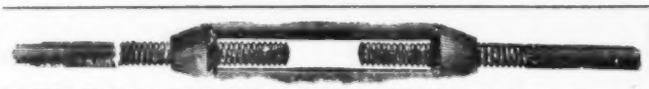
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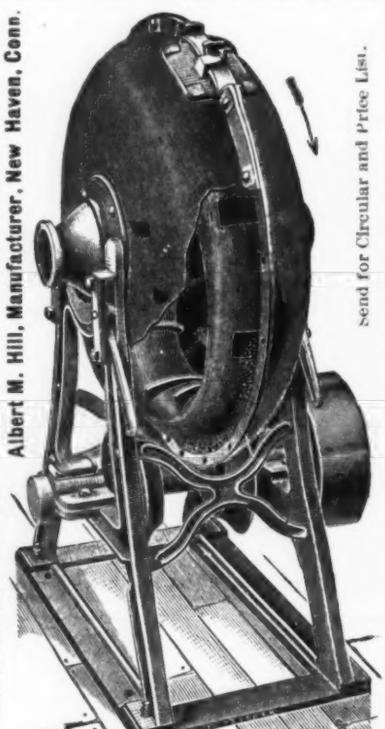


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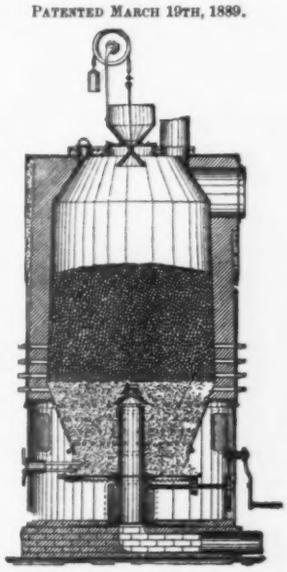
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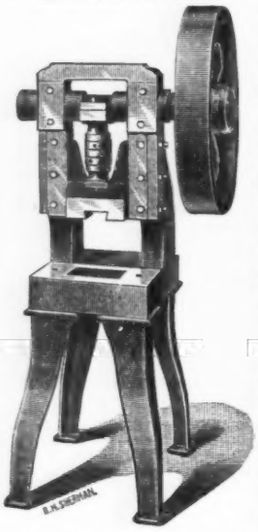
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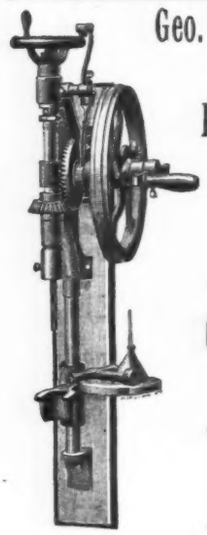
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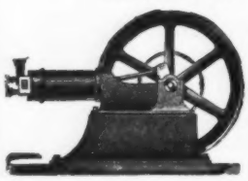
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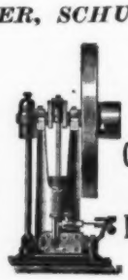
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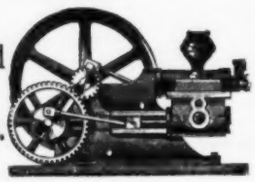
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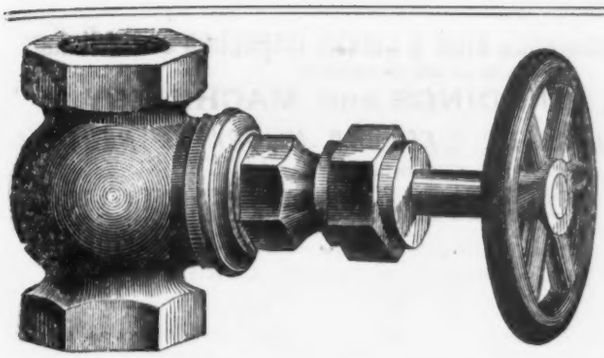
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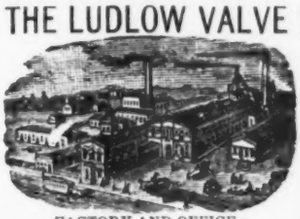
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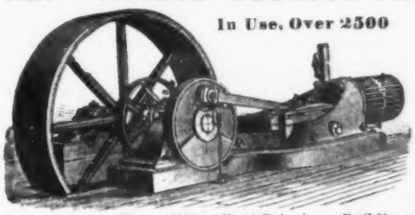
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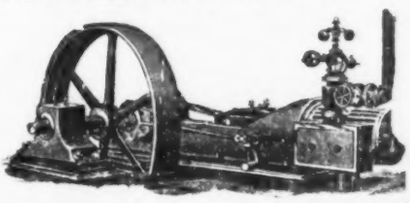
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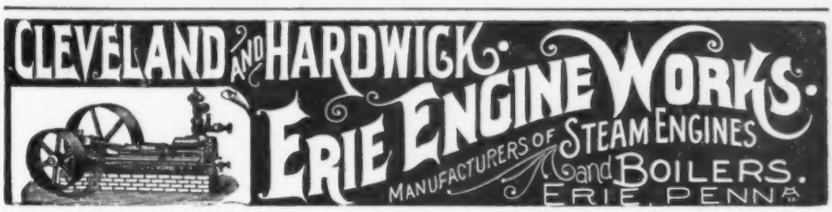
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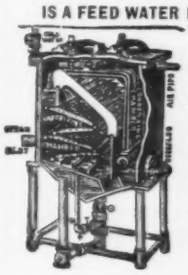
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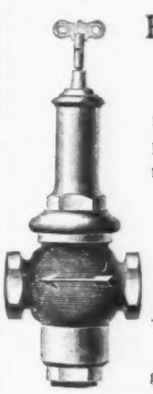
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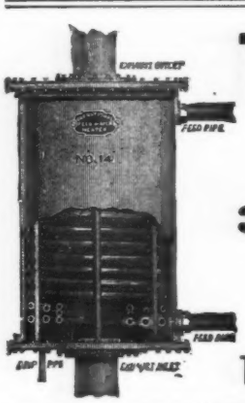
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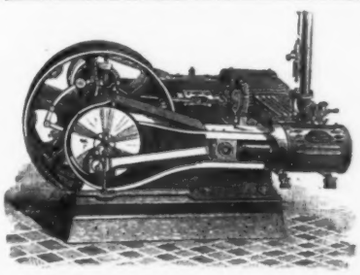


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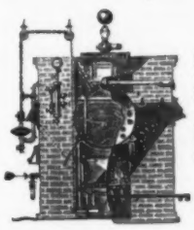
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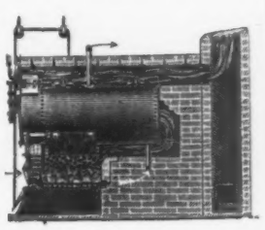
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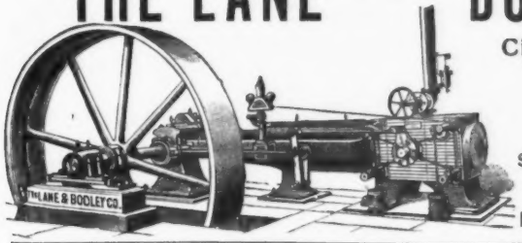


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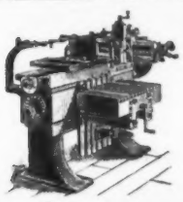
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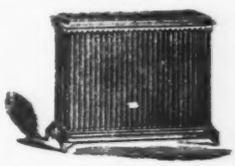
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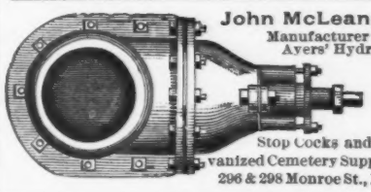
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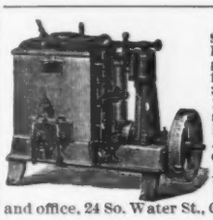


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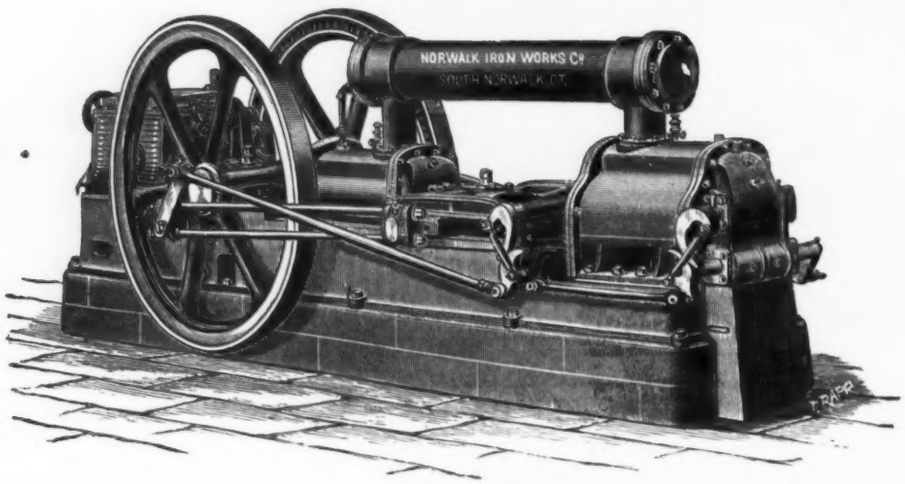
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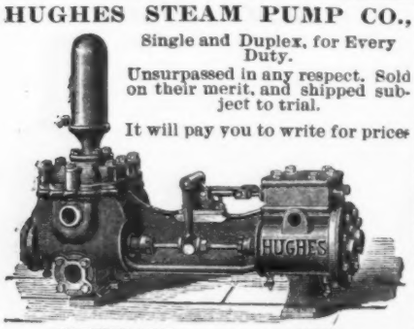
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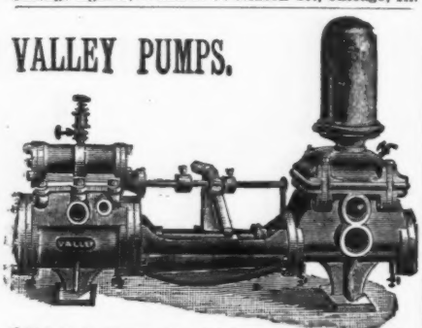
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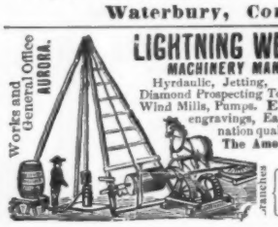
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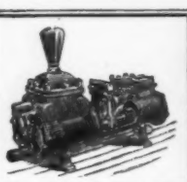
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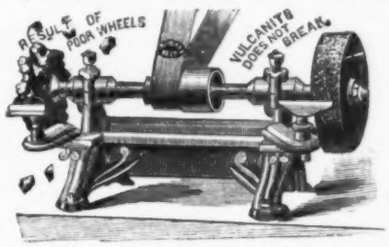
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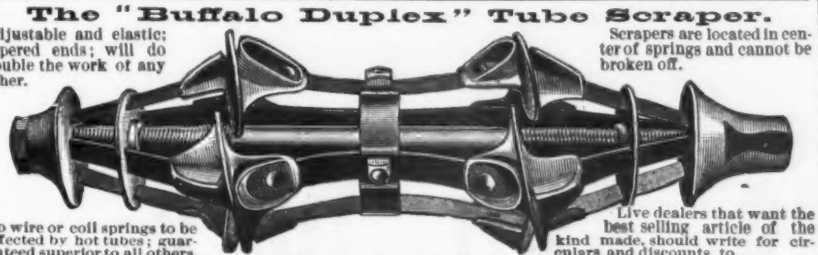
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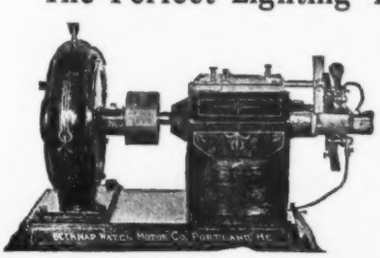


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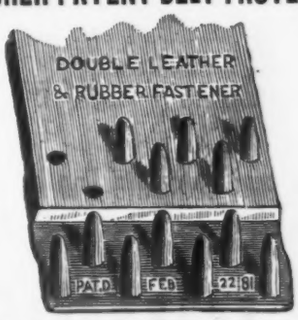
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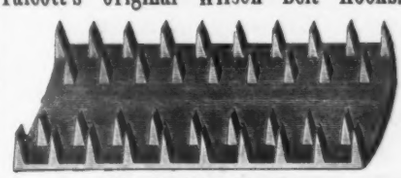
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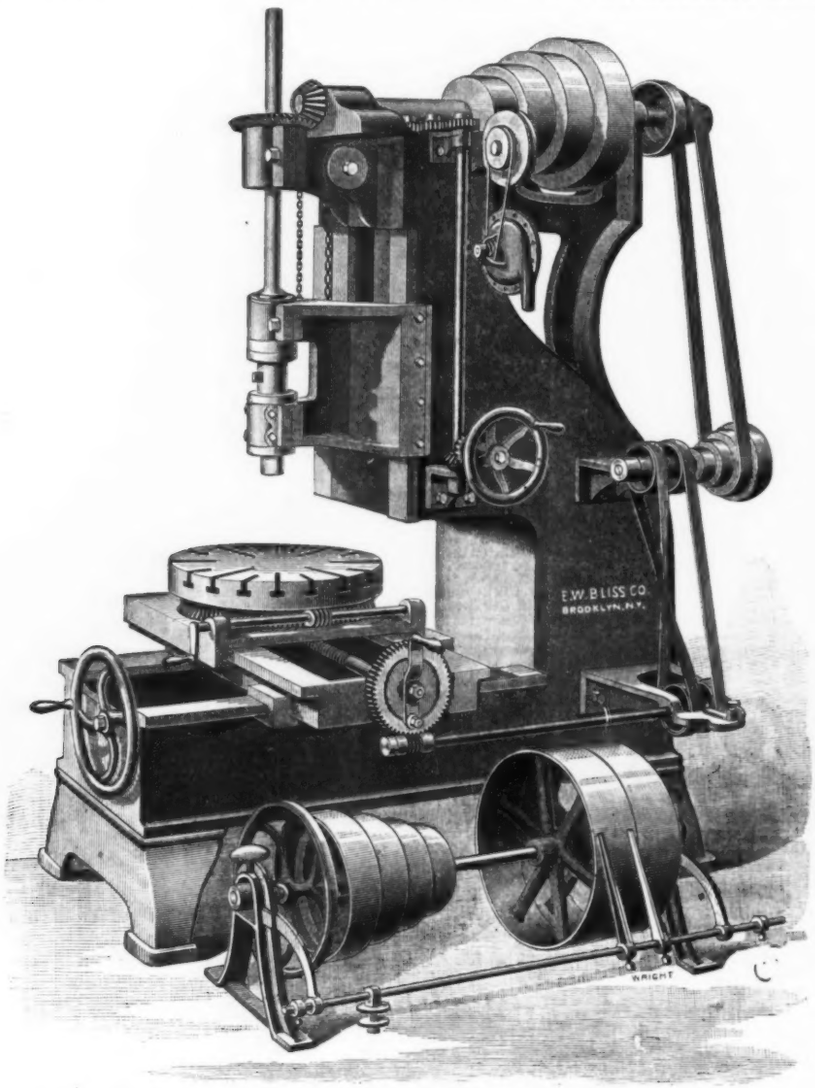
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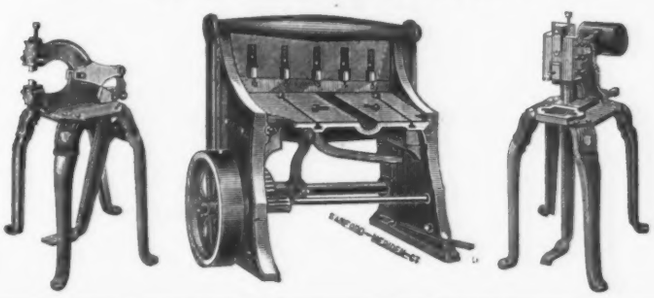
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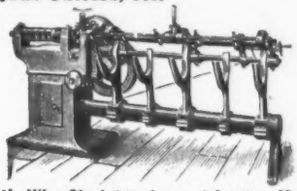


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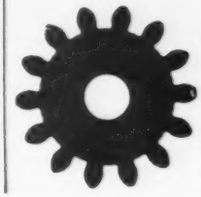


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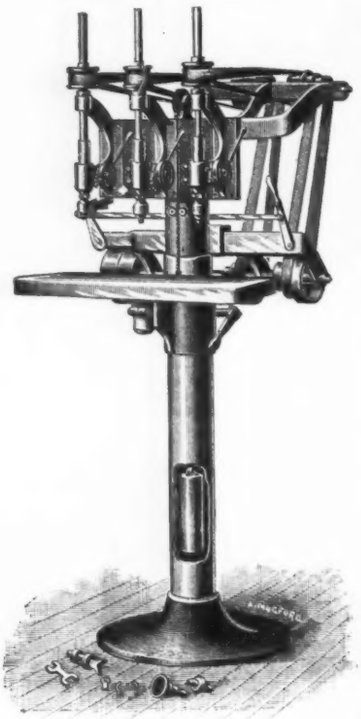
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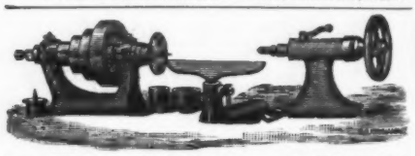
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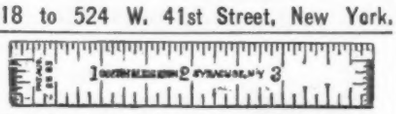
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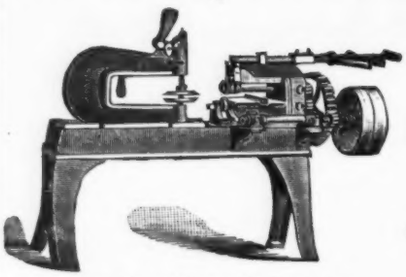
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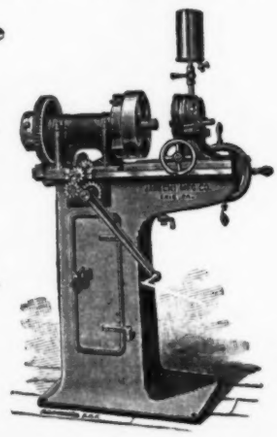


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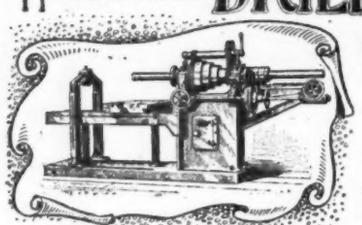
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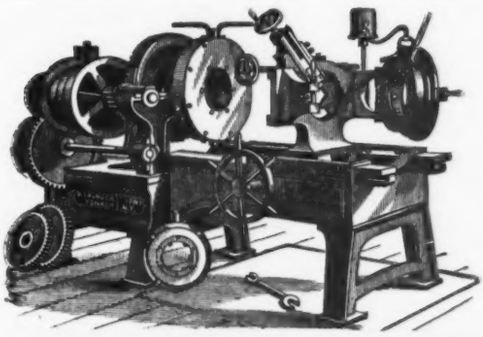
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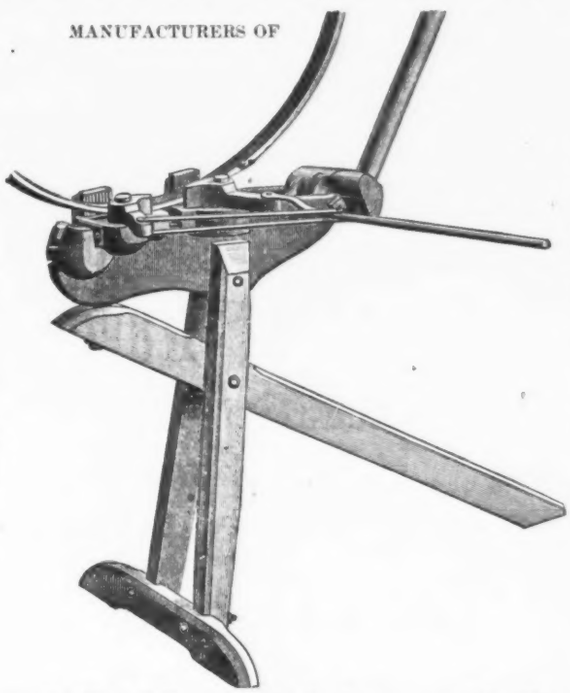
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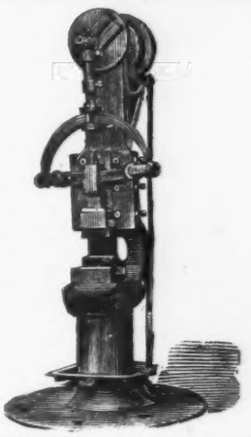


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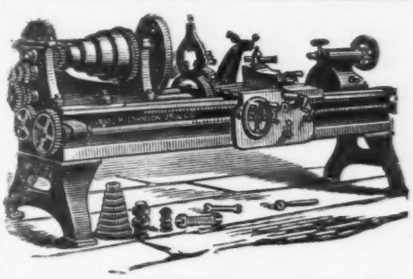


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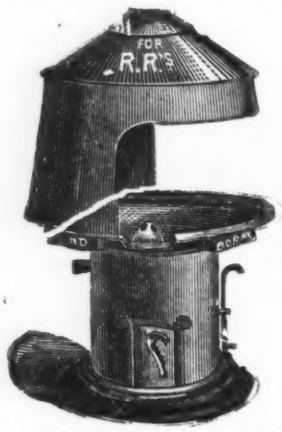
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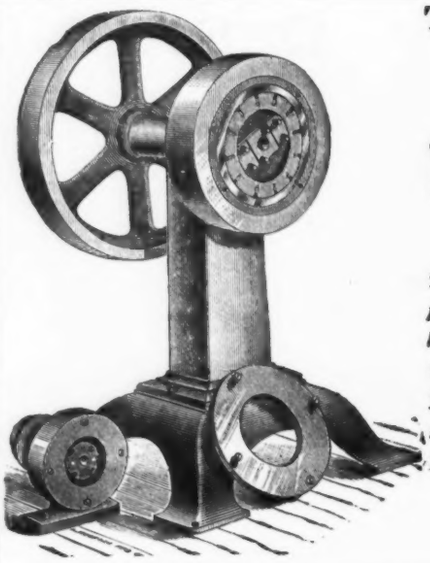
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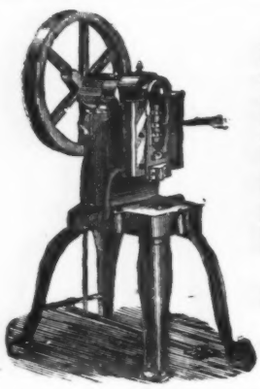
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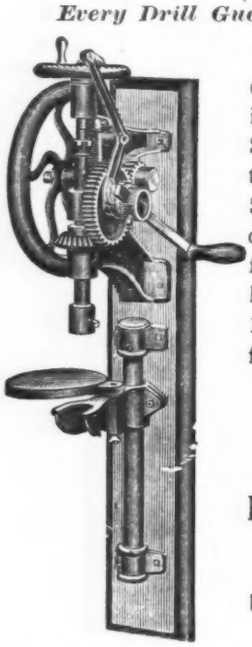
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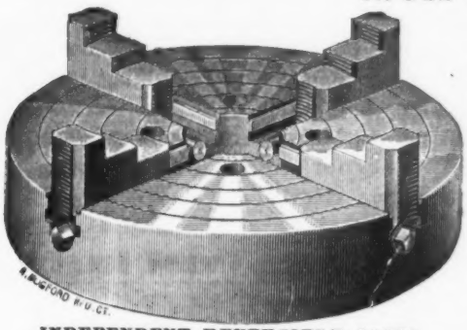
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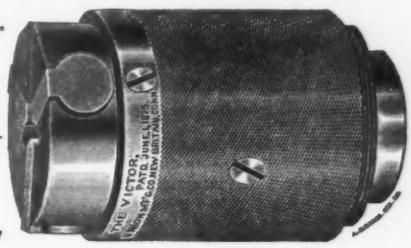
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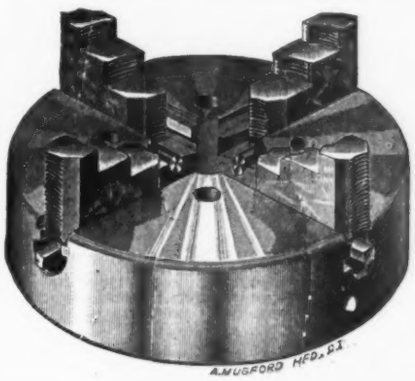
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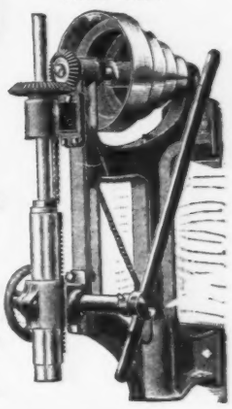
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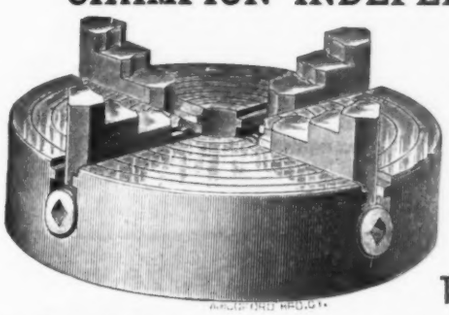
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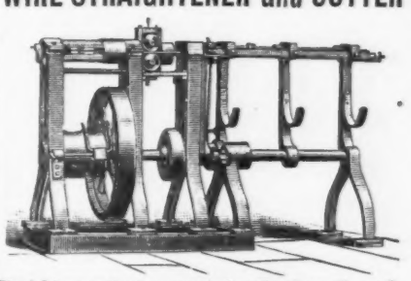
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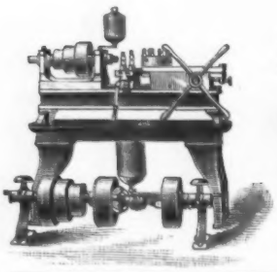
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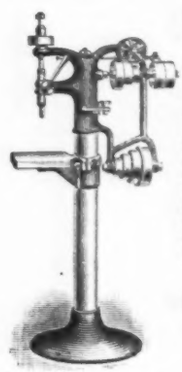
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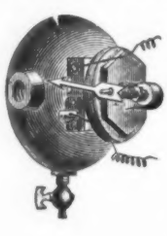
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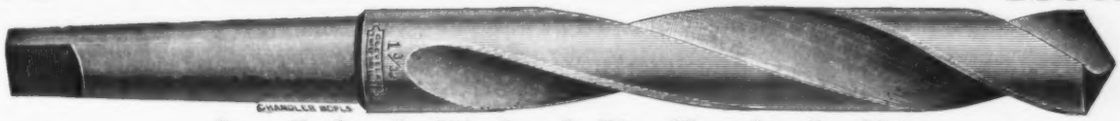
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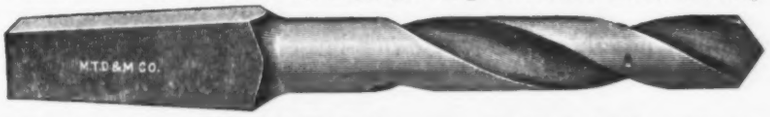
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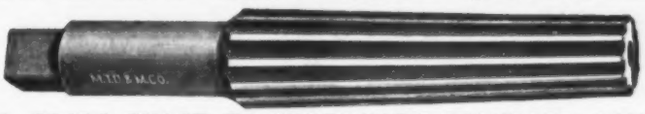
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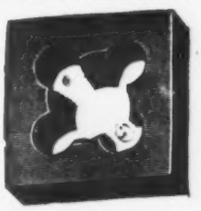


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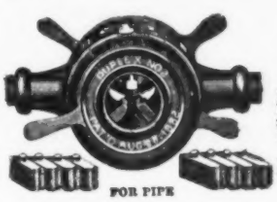




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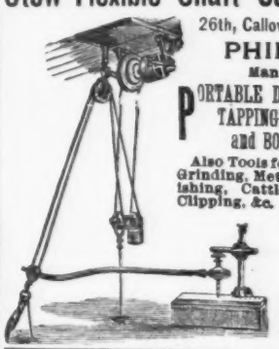
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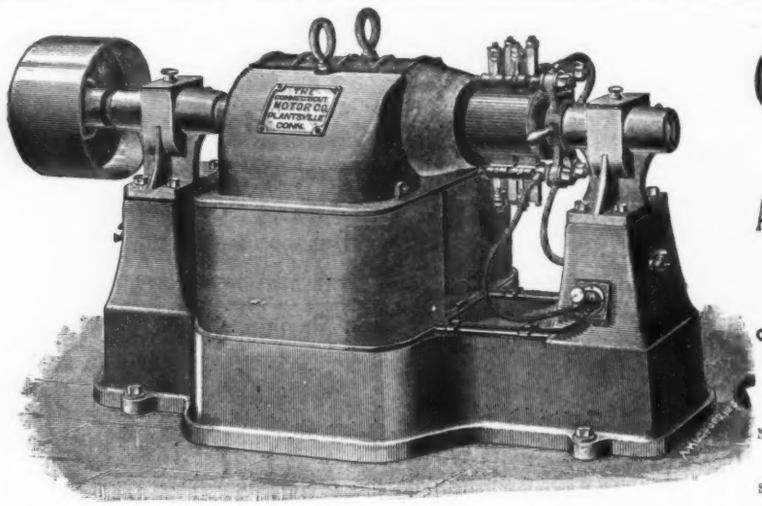
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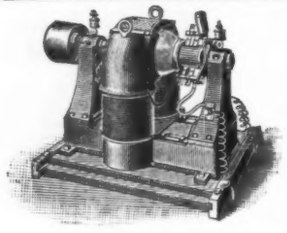
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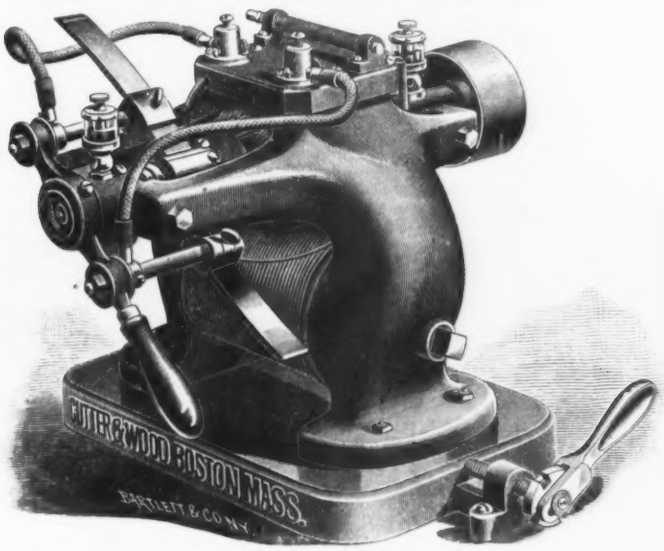
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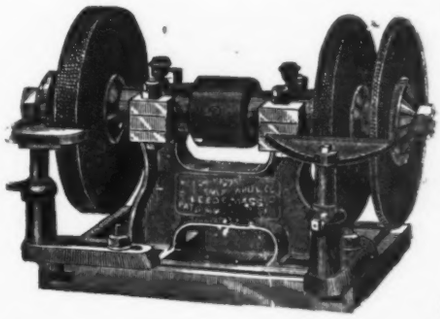
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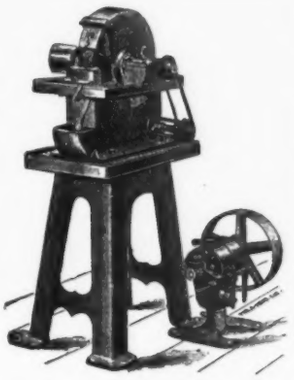
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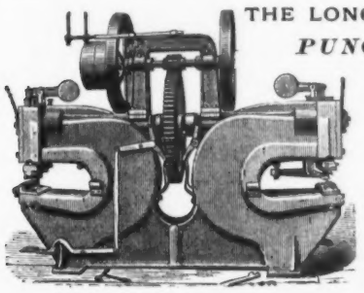
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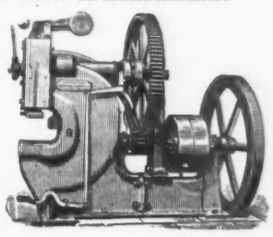


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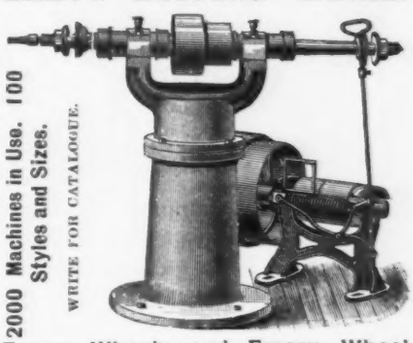
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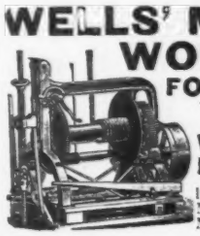
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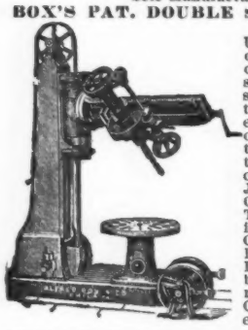
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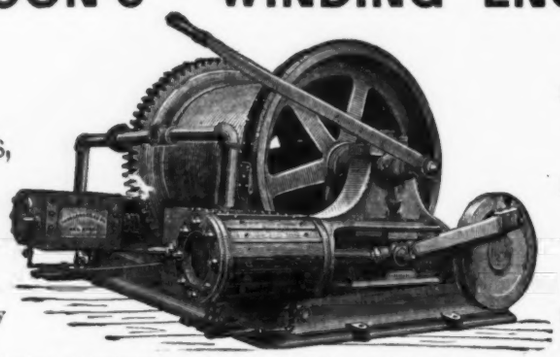
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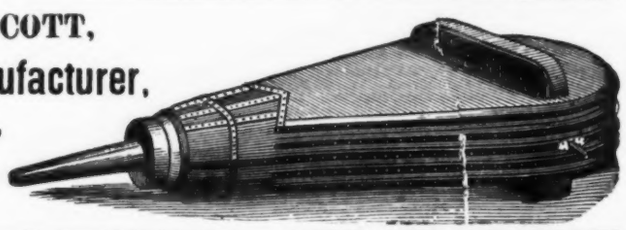


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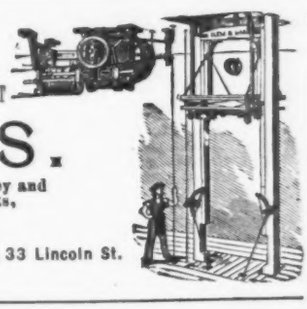
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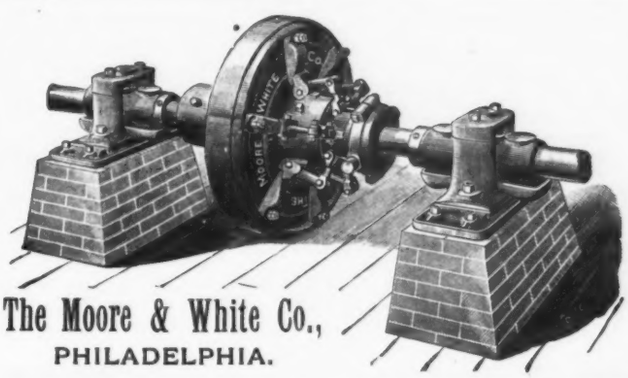


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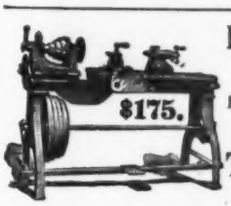
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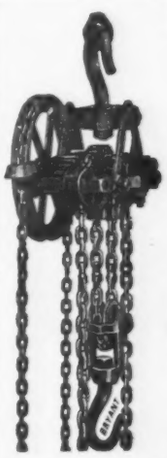
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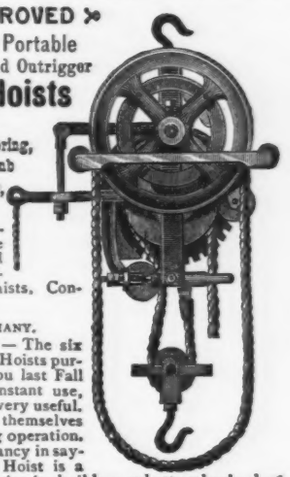
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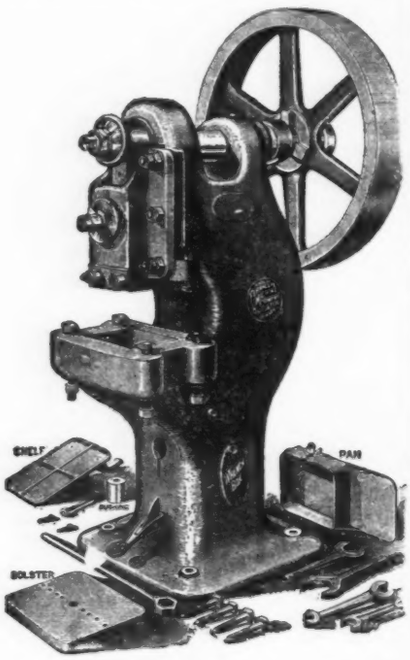
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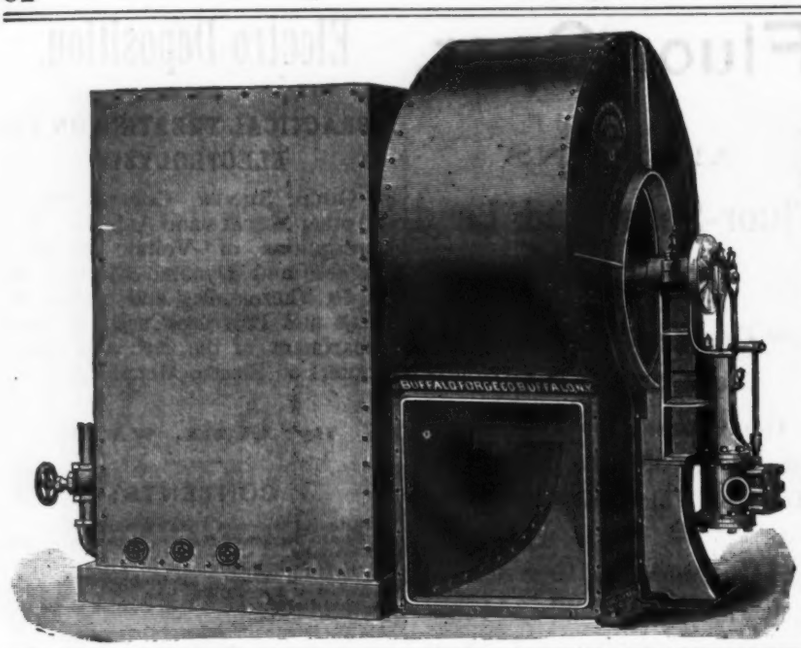
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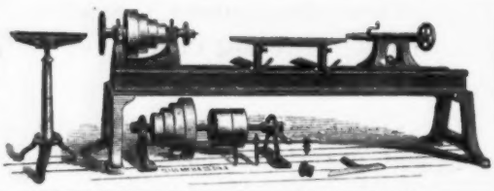


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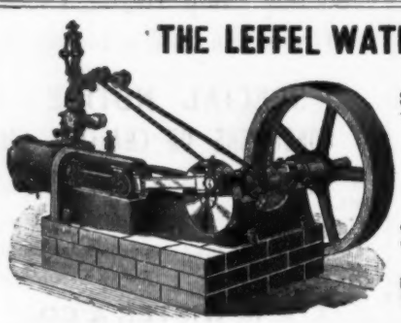
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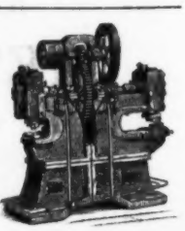
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New Flue Boiler, 50 horse, and others, good order.
Porter Horizontal Engine, 80 horse; Vertical Engine, 60 horse.
One 8 x 10 High Speed Engine.
Complete Machine Shop Tools, Lathes, &c.
One first-class Ingersoll Compressor, 24 x 30.
Five Steam Drills.
Address GEO. M. CLAPP, Agt., 74 Cortlandt St., N. Y

PROPOSALS
—FOR—
Vertical Pumps.

Sealed proposals will be received at the office of the Board of City Affairs until 12 o'clock noon of December 26, 1890.

For four vertical pumps of five million capacity each in twenty-four hours; these pumps to take the place of similar size Wetherill pumps now in position and to operate by the steam ends now in use. Each bidder is requested to examine and measure the well and so design his work as to properly connect with the parts to be retained.

Each bidder will be allowed to furnish his own plans, drawing and specifications, with guarantee as to date of completion and forfeiture for failure in time; also, will be required to give proposition on plans and specifications furnished by the Board of City Affairs.

For particulars apply to Willis P. Tharp, Superintendent and Engineer of Cincinnati Water Works.

The Board of City Affairs reserves the right to reject any or all bids.

By order of the Board of City Affairs.

THOMAS G. SMITH, President.
Attest: D. W. BROWN, Clerk B. C. A.

WANTED.—Second-hand double hoisting engine, suitable for unloading canal boats; boiler not needed. Address, with full particulars,

BUFFALO STEAM FORGE,
5 Lewis Block, Buffalo, N. Y.

FOR SALE
Rolling Mill and Bolt Works.

Fully equipped and running time and half time. Mill has 1 10 in. guide train, 1 heating furnace, with all the power necessary. Capacity of mill 10 tons per day. 1 30 H.-P. engine to run bolt and rivet machines &c., 3 latest improved rivet machines, 2 bolt furnaces, 1 large shears, with engine attached. 1 small shears Building is frame, 112 x 60 with slate roof and large ventilator. Unlimited supply of clear spring water flowing into mill through 12 in. main. Mill is located on Penn. R. R., and only several hundred yards from Philadelphia and Reading Railroad. Only responsible parties will be noticed. Special reasons for selling. Address all communications to

WM. H. DIEFENDERFER, Secretary, or
CHAS. E. QUAIL, President.
Auburn, Sch. Co., Pa.

FOR SALE, SECOND HAND.

We have several second-hand Berryman Feed Water Heaters, all in good condition, which have been replaced by larger heaters of same make; we have also a number of heaters of various makes and sizes taken in exchange for Berryman heaters, which we will sell cheap; Feed Water Heaters bought, sold or exchanged.

BENJ. F. KELLEY & SON,
91 Liberty Street, New York.

WANTED.

15 in., 18 in., 24 in. and 30 in. lathes, 2 planers, 2 drills, 2 shapers, 1 Fox lathe and 1 Boring Mill for cash and houses paying 10 per cent,

ISAAC GRAHAM,
1302 N. 28th St., Philadelphia.

For Sale or Lease.

A Rolling Mill in the city of Chicago, well equipped and located for city trade. Capacity of about 100 tons of bar iron per day. It has one 10 in. and one 18 in. train, also one 18 in. muck train. Owners will take all or part of pay in bar iron. For particulars address

"ROLLING MILL,"
office of *The Iron Age*, 59 Dearborn St., Chicago.

WE HAVE FOR RENT one of the most extensive manufacturing properities on the Hudson, within 13 miles of Grand Central Depot, unsurpassed for its railroad and dock facilities; with engine, boiler and other machinery; manufacturers looking for such a property will do well to give this consideration; send for diagram and description.

WILLIAM H. HOYT & CO.,
5 Vanderbilt Ave., opposite Grand Central Depot, New York.

For Ship Building or Tin-plate.

300 to 750 feet front on Delaware River, 1000 feet deep, including well equipped machine shop, foundry erecting shops, pattern shops, brass foundry and store room; will sell or join company to increase business in any direction, no better location on Delaware River; also R. R. facilities. For plans &c., apply to

W. G. HOWELL,
3343 North 17th, St., Philadelphia.

NOTICE

To Manufacturers of Stationary Engines, Steam Pumps, Boilers, Cranes, Cupolas, Ladles, Blowers, Machine Shop and Electric Light Equipment. Propositions will be received for furnishing either of the above mentioned. The Company will furnish specifications, blue prints and other information, reserving the right to reject any or all of the propositions made. Would be pleased to receive Catalogues, Circulars &c. Address

RADFORD PIPE & F'DY CO.,
5 United Bank Building, 3d, and Walnut Streets, Cincinnati, Ohio.

WANTED

Manufacturer for a large number of metal washing machines. Apply to the

CATARACT WASHING MACHINE CO.,
74 Cortlandt St., New York.

CHANGED WEEKLY.

1
LOCOMOTIVES, 36 in., wanted by J. D. Harden, Columbia, S. C. and J. M. Fulmer, Norristown, Pa.

2
PLANER wanted by parties at 98 Reade St., New York, about 4 ft., with 20 to 30 in. between centres.

3
ROLLS; 3 train for sale, complete, Philadelphia delivery. Also 20 x 12, N. Y. delivery.

4
LITTLE GIANT STEAM SHOVEL wanted, N. C. delivery, new or second hand.

5
STEAM or POWER HAMMER wanted, New Haven delivery.

6
SHIP SPIKES wanted, assorted sizes, B'kl'n.

7
Send descriptions of what you have for sale or want, and if possible will put you in communication with parties direct, giving all names and particulars.

H. H. MANSFIELD,
52 Wall Street, New York

FOR SALE.

The Rolling Mill Property recently operated by James Rowland & Co., situated on Delaware Ave., above Poplar St., Philadelphia. The property consists of three large lots, including a Wharf, Brick and Frame Buildings; Valuable Machinery in good running order, including 4 trains of Finishing Rolls, 8 in., 12 in., 15 in. and 18 in.; Steel Plate Mill, Nail Mill, 11 Double Puddling Furnaces, 6 Heating Furnaces, Sidings, Artesian Wells, &c. For further particulars apply to R. HECKSCHER & SONS, or at the office on the premises, 920 N. Delaware Ave., Philadelphia.

PATTERNS FOR SALE.

Assorted Brass Patterns for use in manufacturing light hardware; also four (4) Japan Ovens complete with shelves. Write for particulars.

NATIONAL BOLT, NUT & RIVET WORKS,
P. O. Box 243, Reading, Pa.

FOR SALE.

A LOT OF
SCALES and DUMP BUCKETS
ADDRESS
THOMPSON C. GILL & CO.,
212 S. Third St., - Philadelphia, Pa.

"THE MAISON BEER,"

Mechanical Engineers, at Jemeppe (Liege), Belgium, wishes to introduce in the United States its patent

WIRE ROPEWAY,

and solicits correspondence with some prominent American firm for sale of the patent.

IRONMASTERS, I can invest your surplus for you to great advantage in Real Estate or Manufacturing enterprises. The coming city of this wonderful section. Correspondence solicited. References. GEO. Y. WORTHINGTON. **BUCHANAN, VA.**

EASTERN CONCERNS

Desiring to have their goods manufactured farther West will find it to their advantage to correspond with the **Rockwell Machine and Car Company,** Sandusky, Ohio.

Ample facilities for heavy and light iron castings, brass castings, heavy and light machine work, blacksmith work and woodwork.

Best of shipping facilities over four railroads and by lake.

Will manufacture on royalty, commission or on any terms mutually agreeable.

TO LET.

Machine shop well supplied with tools and power, at 57 John St., basement. Apply on premises.

Iron Bridge M'f'r's.

The demand in the South for Iron Bridges and buildings is now very large and growing. A Bridge and Structural Iron Works in the South would have an abundance of orders and pay large dividends from the start, if it was located accessible to coal, on competing lines of R. R., and where material of good quality could be readily secured. Buchanan, Va., presents all of these advantages. It is on two trunk lines of R. R., with two more located; it is in the midst of the great iron and coal fields of the Virginias, and the Central Land Co., of Buchanan not only offers free sites but financial aid from its large cash development fund ($400,000). This is a rare opportunity to a pushing, energetic Bridge Builder. Buchanan also seeks associate industries on similar terms. Address CENTRAL LAND CO. of Buchanan, Buchanan, Va.

Iron Manufacturers

OF THE NORTH,

COME SOUTH!

Come and use the vast resources of West Virginia. Locate works at Charlestown. Free locations with best of Railroad facilities will be donated, and Cash Capital contributed.

Charlestown is at the junction of the Shenandoah Valley, now owned and operated by the Norfolk and Western, and the Baltimore and Ohio Railroads. The former penetrates the Iron fields of the South and Southwest, reaching the sea at Norfolk, Va., and connecting with the Pennsylvania R. R. North. It is 85 miles from the port of Baltimore by the B. & O. At Charlestown the cheap iron, coal and coke from Virginia andthe South meet the iron, anthracite coal and coke from Pennsylvania, besides having vast deposits of superior brown and red Hematite ores on the spot.

The South is going to the front in iron manufacture. Northern manufacturers with their experience and methods, who have the shrewdness to see the opportunity and the courage to make a new departure will, do well to come South. Structural and architectural and railroad supply works, cast and wrought pipe works, stove foundries, car shops, in fact all kinds of iron industries great and small will have great facilities and unusual inducements offered them to locate at Charlestown, West Va.

For full information, address as above.

CHARLESTOWN MINING & IMPROVEMENT COMPANY.

An interest in a

Large Iron Property

IN

VIRGINIA FOR SALE.

Brown and Red Hematite and Red Shale Iron Ores in great abundance. Transportation facilities good.

The ores make a superior quality of iron and are in demand. Immediate development desired.

For further particulars address

HOWARD & SEARS,

Eagle Rock, Virginia.

A CHARCOAL FURNACE PLANT

for sale at great sacrifice, on accommodating terms, with 13,000 acres, mostly timber land; fine ore supplies in vicinity. Directly on "Frisco" Railroad. Address,

"MISSOURI,"

office of *The Iron Age*, 220 S. 4th St., Philadelphia.

BOILERS AT A BARGAIN.

Four 80 Horse Tubular, one 90 Horse Tubular, four 50 Horse 2 Flue; all insured for 80 pounds steam.

Geo. M. Clapp, Agt., 74 Cortlandt St., N. Y.

CAN WE SERVE YOU?

If you have a stock of Hardware to SELL in any city or town in the U. S.

If you want to BUY a stock of Hardware in any city, town or village in the country.

If you want a traveling salesman for Hardware.

If you want a position as traveling salesman for Hardware.

If you want a tinner.

If you are a tinner and want a position.

Write the MERCANTILE EXCHANGE,
Macon City, Missouri.

All correspondence confidential.

FOR SALE.

Half interest in first-class Hardware Business, located in Western New York, doing a good, prosperous business; nice, clean stock; will inventory January 1st about $10,000; store large and very convenient; will sell or rent store; reason for selling, wish to engage in other business; this is a rare chance. Address "HALF INTEREST," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
338 and 342 E. 7th St., St. Paul, Minn.

FOR SALE.

A clean, neat stock of Hardware, Stoves, Crockery and House Furnishing goods. Large Tin Shop and Hot Air Furnace Department attached. Stock by January 1st, 1891, can be sold down to less than $10,000. In a live western city of 22,000 inhabitants. Owner has run the business over 30 years and wishes to retire. Address "ILLINOIS,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

FOR SALE.

One-half interest (to commence February 1, 1891,) in an old-established and flourishing business, trading in Hardware, Stoves, Furnaces, &c., and doing an extensive Plumbing and Jobbing business; located in one of New York City's most flourishing suburban towns, and commanding the bulk of trade in this fast growing section. Store and equipment said to be the finest in the East. Annual business over $100,000 and steadily increasing; stock about $25,000. Will sell only to one who will take an active part in management and furnish satisfactory credentials. Address

GEORGE D. FURGUSON & CO., Mt. Vernon, N. Y.

WANTED.

Partner with $75,000 to $100,000 capital to purchase interest of retiring partner in Rolling Mill in successful operation near Philadelphia. Address

"WARD,"

office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

TO HARDWARE MANUFACTURERS.

A gentleman who is interested in the manufacture of a limited number of goods wants another line of hardware or specialties to represent on the road in connection with his own. He travels continuously, covering the whole of U. S., and is favorably and personally acquainted with all the large jobbers and larger retailers; previous to going into the manufacturing business, was connected with a large jobbing house, and has a thorough knowledge of all branches of the hardware business. Address "L. 90," office of *The Iron Age*, 66 & 68 Duane St., New York.

Stock For Sale.

A firm having rolling mill near Philadelphia in successful operation and transferring same into stock company to extend business, desire purchasers for portion of stock. Treasureship open to a liberal, desirable subscriber. Address

"P. B. C,"

office of *The Iron Age*, 220 So. 4th St., Philadelphia.

FOR SALE —One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address

VULCAN IRON CO., LTD.,
New Castle, Lawrence Co., Pa.

ONE OR TWO GENTLEMEN

TO PURCHASE

President's $70,000 interest Incorporated Manufacturing Company. Seller will loan company $100,000 to increase business if desired.

"A. L. B.,"
Carrier 22, Buffalo, N. Y.

WANTED

WIRE NAIL CONTRACTOR.

An eastern manufacturer of wire desires to secure a competent man who will take a contract to manufacture wire nails on six wire nail machines, everything but labor and dies being supplied him. Address

WIRE NAIL MANUFACTURER,
office of *The Iron Age*, 66 and 68 Duane St., N.Y.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER.
115 Dearborn St., Chicago.

Ingersoll Air Compressor, 24 x 30

Good as new, at a bargain,

Geo. M. Clapp, Agt., 74 Cortlandt St., N. Y.

WANTED.

Competent and Reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
321 Grand Ave., Brooklyn, N. Y.

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

M. GENERELLY,

17 Decatur Street, - New Orleans, La.

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need address, with references,

"PARTNER,"
care of The Eaton, Cole & Burnham Co.,
82 & 84 Fulton St., New York.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
Commerce Street, Philadelphia, Pa.

RARE OPPORTUNITY
FOR MANUFACTURERS.
FOR SALE AT A SACRIFICE
A FLOUR MILL.

(Complete roller process), a Foundry Facing Mill, having five run of stone; three Turbine wheels of 40 H.-P., each, with unlimited power from Lehigh River in reserve; ample room to erect large buildings for shoe, textile or other manufacturing enterprise, which can be driven by same water power. In the heart of the great Lehigh Valley iron region; direct railroad and canal communication to New York and Philadelphia; also on railroad connecting directly with Boston and New England R. R.; location of mills outside of borough limits, therefore not subject to town taxation; must be sold to close out an estate. For full particulars address

JOSEPH LYNN,
Freemansburg, Northampton Co., Pa.

SPECIAL INDUCEMENTS

Offered to any Manufacturer who will locate in

SAUGERTIES, N. Y.

Plenty Help. Cheap Coal Best Transportation.

ADDRESS

BOARD OF TRADE, SAUGERTIES, N. Y.

FOR SALE.

A first-class and profitable hardware business located in a Western New York village of 5000 inhabitants. Satisfactory reasons given for selling. Parties meaning business only address

"RARE OPPORTUNITY,"
office of *The Iron Age*, 66-68 Duane St., N. Y.

FOR SALE
VALUABLE PATENT

for Power Baling Press. Also Steel Bob Sleds. Actual use testifies to great value of each. Will let either on Royalty or take stock in company. Also two new Geer Wheels, 72 teeth, 1½ inch pitch, 3 inch face, 2⅝ inch hole in hub.

C. O. NEWTON, Homer, N. Y.

To Those Interested.

An old established manufacturing concern, with large trade in the West and South, requires more room and will consider propositions looking to a change of location. The business embraces general foundry work, hardware and agricultural implements. Address

"W.,"
Box 211, Chicago.

WANTED.—To lease in the neighborhood of New York or the Iron District of Pennsylvania, premises suitable for a small foundry and engineer's shop; if with cupola, &c., preferred. Address, with particulars, "IRON DISTRICT," office of *The Iron Age*, 66-68 Duane St., New York.

WANTED
WIRE ROPE MANUFACTURER.

The New Haven Wire Mfg. Co., manufacturers of Wire, desire to correspond with any manufacturer of Wire Rope, who would like to entertain moving to New Haven, Conn. Ample facilities will be given him and without doubt a favorable connection established.

WANTED.—Live agent traveling to sell State rights or exclusive right to make and sell my patented improvement in lanterns, on commission. Address

J. E. PERRY, Box 184,
Wakefield, R. I.

—30 Pound Rail—

Want cash bids on 135 gross tons, new or good second-hand steel rail, with switches and joints. Address "EUREKA,"

Backbone, Va.

A WELL KNOWN

and old established firm building engines, boilers, machinery and iron work of all kinds will arrange with a responsible party in New York to sell for them on commission. This is a good chance for a party already selling who wants to add a line of high grade engines and boilers. Address "ARRANGEMENT,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

CAPITALISTS ATTENTION.

Wanted to organize a stock company under patents that will give control of one of the most extensive branches of iron business. Address "D. O. B.," office of *The Iron Age*, 66 and 68 Duane St, New York.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.—A partner, with capital, in Iron Commission business in Philadelphia, (with correspondents in Pittsburgh and New York), having an established trade and showing 20 per cent profit on capital of $40,000. The withdrawing partner has been appointed to position in Furnace and Mill Company. The remaining partner cannot handle the whole business with the desired effect. A man who has had some experience in iron business preferred. Address "PHILADELPHIA COMMISSION," office of *The Iron Age*, 220 South 4th Street, Philadelphia, Pa.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A YOUNG MAN with good business ability and thoroughly experienced as commercial Salesman, Bookkeeper or general office man will be open for an engagement January 1st; references A1. "A. B.," 704, office of *The Iron Age*, 66 and 68 Duane St., New York.

A YOUNG MAN, 16 years' experience in General and Builders' Hardware, good Salesman, best of references as to business ability and moral character, would make connection with a good house in a live growing city, where a small amount of capital will obtain an interest in the business. Address "PROMOTION," office of *The Iron Age*, 66 and 68 Duane St., New York.

A YOUNG MAN of experience in the manufacture of all kinds of agricultural spring work is seeking an engagement; is competent to put in and operate plant for the manufacture of rake teeth, spring harrow teeth and other spring work, as his references will fully prove. Address "RAKE TEETH," office of *The Iron Age*, corner Fourth and Main Sts., Cincinnati.

BY A MAN of 37, a position as Superintendent of electric light factory or machine shop; have had six years' experience at same, and modern way of doing machine work; also perfectly capable of buying stock for the manufacture of electric light apparatus or machinery; also thoroughly understands new concise method of keeping factory accounts and books; in all a thorough business man; can give best references. Address "INQUIRER," office of *The Iron Age*, 66 and 68 Duane St., New York.

AS BOOK-KEEPER, Time-keeper, Correspondent or Clerk in a manufacturing company; have had over ten years' experience in all branches of office work; am very rapid and accurate; can give good references. Address "H. H. H.," Box 1413, Zanesville, O.

WANTED, the sale of a manufacturer's goods by one of the best Salesmen in the Hardware trade; is an experienced merchant, 35 years of age, 20 years in the Hardware business and knows most everyone in the line; best of references. Address "HUSTLER," office of *The Iron Age*, 66 and 68 Duane St., New York.

TRAVELING MAN of experience, visiting the Western hardware trade, wants one or two more manufacturers' lines, of merit only, to offer in connection with his own. Address "B. B. M.," Box 37, office of *The Iron Age*, 66 and 68 Duane St., New York.

ROLL TURNER wants position in merchant bar, guide or shape mill; sober, steady and industrious; age 30. Can furnish best of references. Address "L. S. H.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A SETTLED MAN, age 28, familiar with general hardware, wishes a position in wholesale house; eleven years' experience, four years was head of stock and buyer for Southern firm; best of references. Address "N. C. W.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

IRON AND STEEL Salesman with 6 years' experience open for position January 1st, to travel Pennsylvania, Delaware, New Jersey and New York, for plate or tool steel mills; formerly in business for self. Address "I. S." office of *The Iron Age*, 66 and 68 Duane St., New York.

SALESMAN.—A thoroughly competent young man with ten years' road and city experience in the cutlery business is open for engagment as outside salesman, any line; reference A 1. "A. M.," office of *The Iron Age*, 66 and 68 Duane St., New York.

SITUATION as traveling salesman for a first-class steel house, by a man thoroughly experienced in all branches of the business and having a good trade in New England and Middle States; best of references as to ability, perserverance and sobriety. Address "ADAMS," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

THE UNDERSIGNED has been in the employ of large manufacturing establishment nine years, three years as stenographer and for six years had entire charge of correspondence; speaks Spanish; traveled in Mexico and South America; very successful as salesman; wishes position in office, or as traveler; highest reference. Address "MEXICO" office of *The Iron Age*, 66 and 68 Duane St., New York.

A POSITION as Traveling Salesman to represent first-class manufacturers; have had long experience in Machinery, Tool and Supply business and also Builders' Hardware Best of references. Address "MANUFACTURER'S SALESMAN," office of *The Iron Age*, 220 South Fourth Street, Philadelphia.

YOUNG MAN with experience in manufacturing hardware specialties and with an extended acquaintance with Western jobbing trade is open for an engagement with manufacturer either on road or in factory; best of references. Address "F." office of *The Iron Age*, Shawmut Building, Boston, Mass.

YOUNG MAN with an extended experience and acquaintance with the jobbing hardware and sporting goods trade throughout the West is at present open for an engagement as salesman; refers to present employers; would prefer to represent some manufacturer of standard goods or hardware specialty. Address "K," office of *The Iron Age*, Shawmut Building, Boston, Mass.

LOCAL AGENCY for Providence for some specialty in hardware, or line of cordage and sheathing paper; best of references and large acquaintance. Address "A." P. O. Box 1279, Providence, R. I.

BY A YOUNG MAN from the country with a wholesale or large retail house; ten years' mercantile experience; unquestionable references for character and ability. Address "H.," Box 97, Marysville, Ohio.

EXPERIENCED COMMERCIAL Traveler, with established trade among jobbing and best retail trade Ohio, Indiana, W. Virginia and Michigan, desires good additional lines on commission; tools, specialties, housefurnishing goods, cutlery, plated ware, &c.; only those willing to pay fair commission for honest work address "COMMERCIAL AGENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

A PRACTICAL rolling mill superintendent who has had fifteen years' experience in structural, bar and rail mills, thoroughly understanding the manufacturing of iron in all its branches, is at present open for an engagement. Address "J., 405," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MARRIED MAN who has had ten years' experience at bookkeeping, labor accounts, cost sheets of jobs, &c., in general machine shop, boiler shop and foundry business; thoroughly reliable and acquainted with the business, clerically, in all its details. Address "CLERICAL," office of *The Iron Age*, 66 and 68 Duane street, New York.

AN EXPERIENCED Mechanical Engineer, thoroughly educated with shop and mill practice, desires a position; familiar with steel works, blast furnaces, modern machine tool design, steam plants, and handling of materials, simple methods of office management and shop accounts; ample references of ability and thoroughness. Address "SAFE PRACTICE," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

POSITION by an experenced Traveling Salesman, who has trade and the acquaintance of all the large buyers and purchasing agents of railroads, hardware and machinists' supply trade. Address "M. M. A.," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A CHEMIST of experience and ability would like a position at a steel works or blast furnace as Chemist; has had experience at both and can furnish excellent references. Address "E. X.," office of *The Iron Age*, 66 and 68 Duane St., New York.

A MECHANICAL ENGINEER familiar with Blast Furnace Work, Rolling Mill Work, hydraulic machinery, pipe mill machinery, engines and boilers, roof construction, sugar machinery, &c., would like to make a change, to take charge of drawing room, assist superintendent or to superintend the erection of a whole plant. Address "DRAWING ROOM," office of *The Iron Age*, 66 and 68 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

TO SHEET BRASS MANUFACTURERS.—A man with twenty two years' experience in the sheet brass and copper manufacture desires to connect himself with an established works as superintendent; has had thorough experience in the detail and management of all the departments of rolled sheet brass manufactures; he has studied the economies and mechanical problems connected therewith, he can give the best of recommendations as to his qualifications. Address "MANAGEMENT," office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGHLY practical Hardware Man of 15 years' experience, most of the time buyer and correspondent, would like a situation with some first-class hardware house; acquainted with all details of a large business; 37 years' old; energetic and systematic in all work; unquestionable references. Address "OLCUTT," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

SITUATION as foreman of foundry; am well posted in all foundry practice. Address "FOREMAN," Office of *The Iron Age*, 59 Dearborn Street Chicago.

BY JANUARY 1st, a position by a practical machinist accustomed to handling large bodies of men on engine work and machine tools; has traveled very extensively for eight years in and out of the U. S., in the interest of a well known Engine Co.; is well up in high speed and compound engines for electric light and street railway work and can make estimates on the same, including installation; Pacific Coast preferred. Address "P. T. H.," office of the *The Iron Age*, 66 and 68 Duane St., N. Y.

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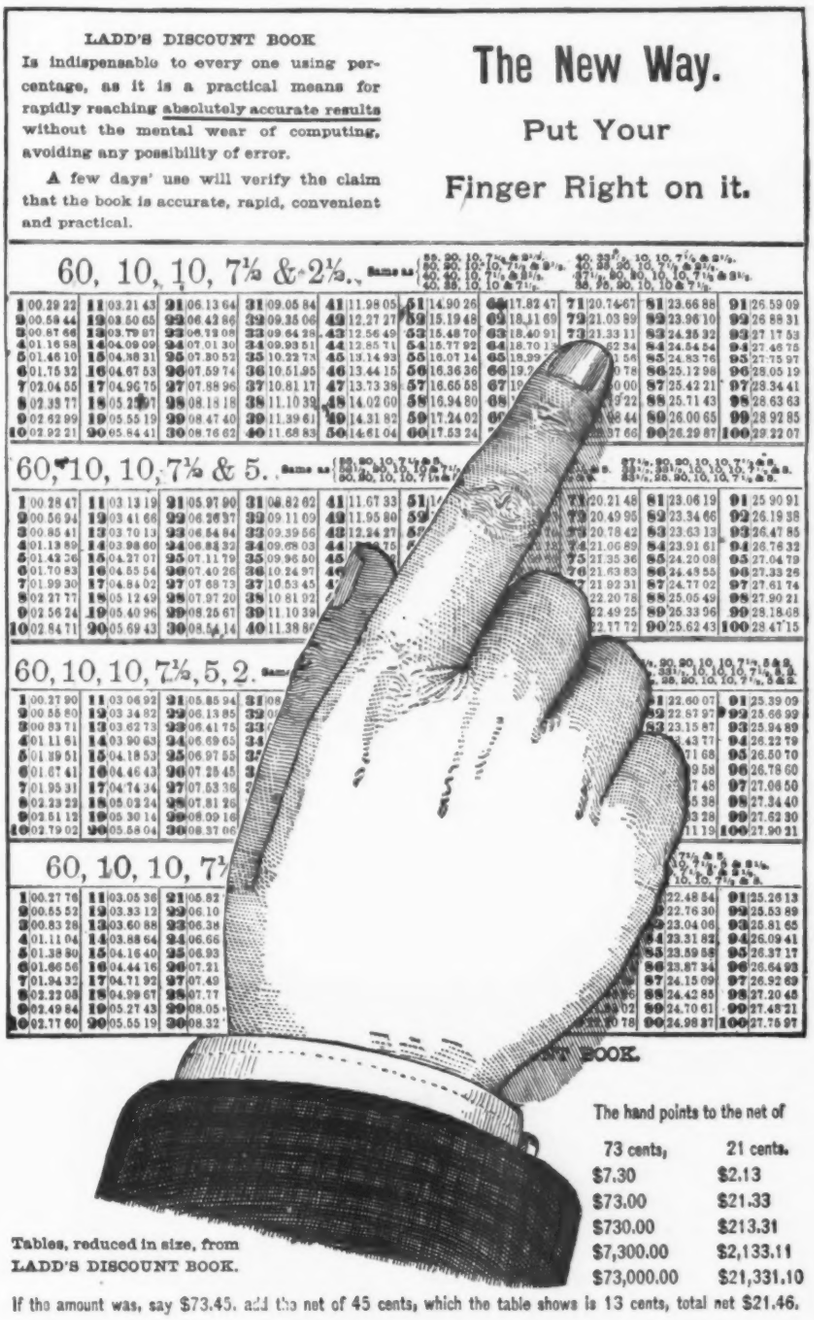
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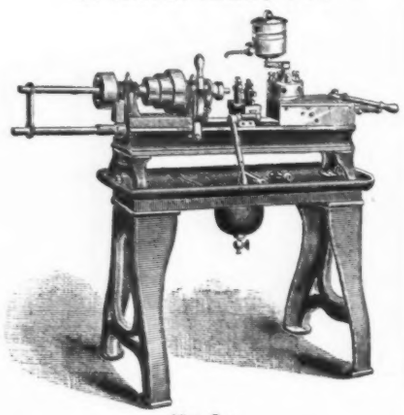
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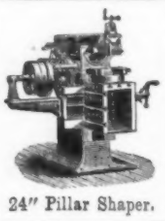
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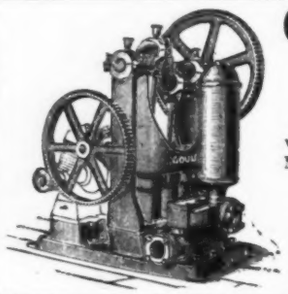


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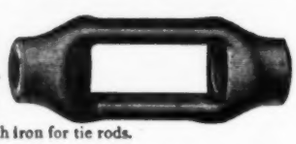
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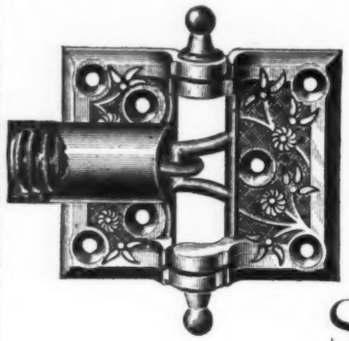


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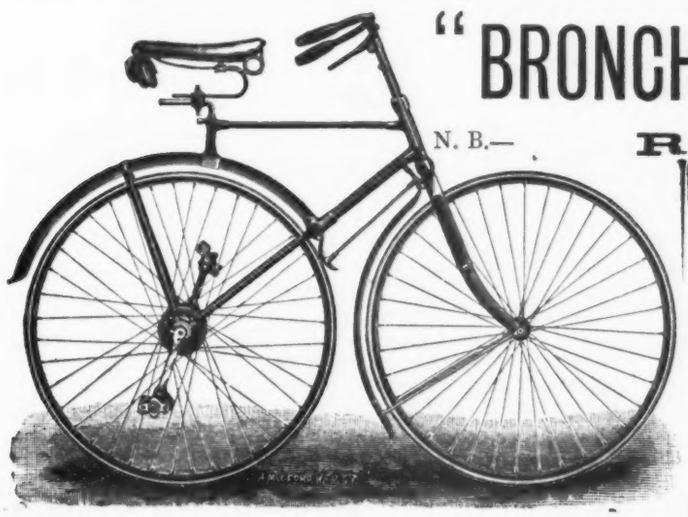
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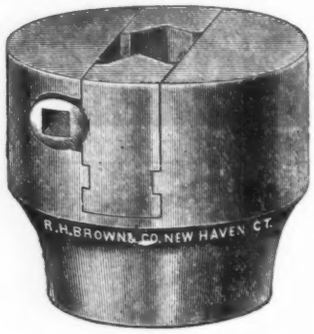
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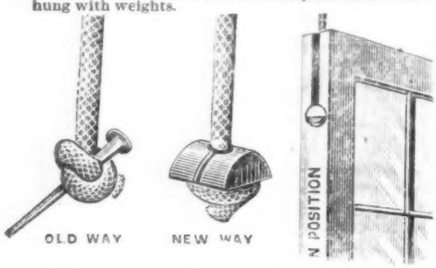
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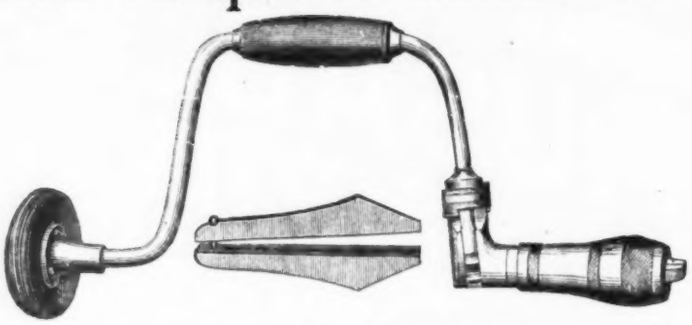
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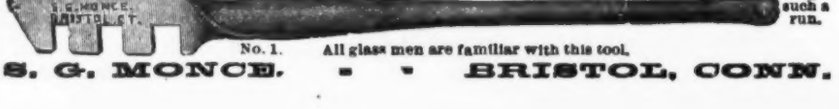
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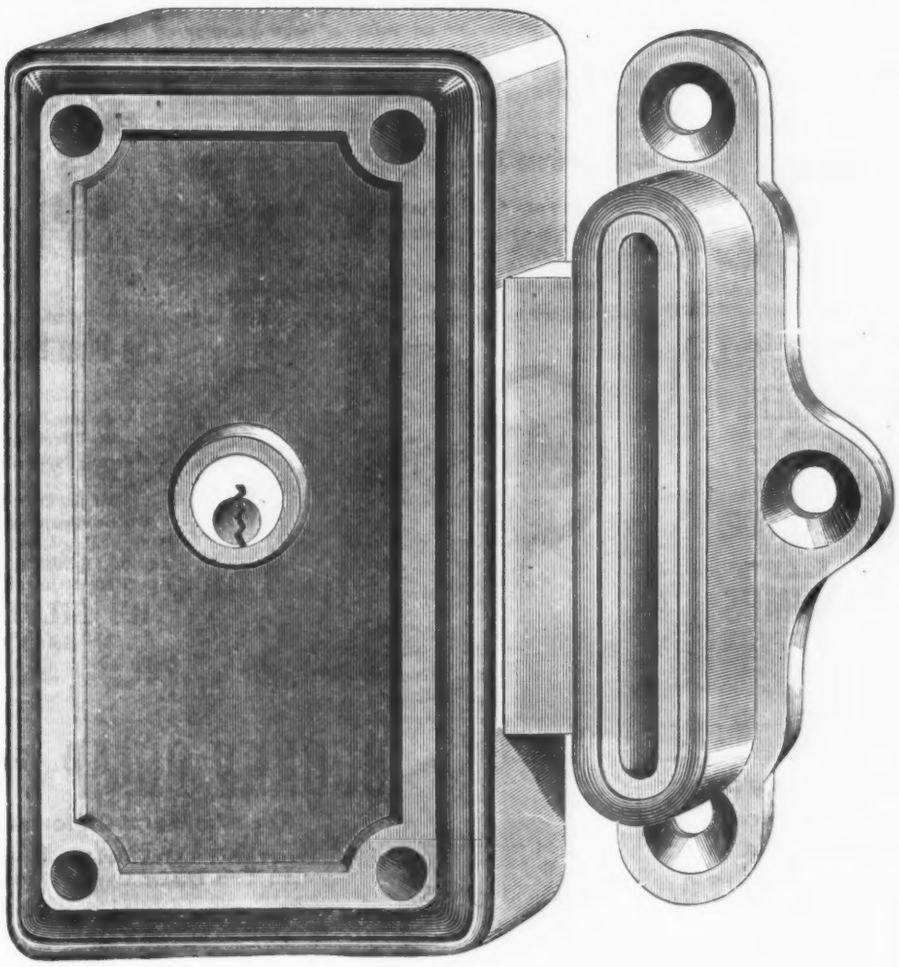
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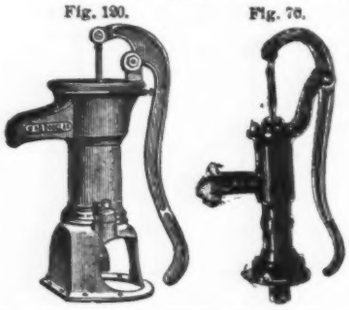
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Fig. 190. Fig. 76.



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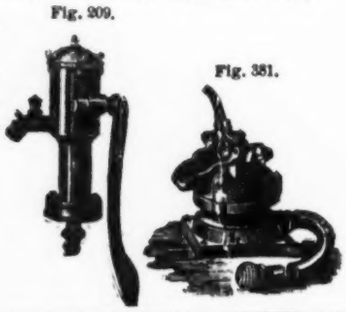
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Fig. 209. Fig. 381.



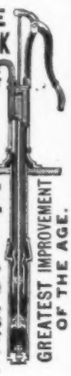
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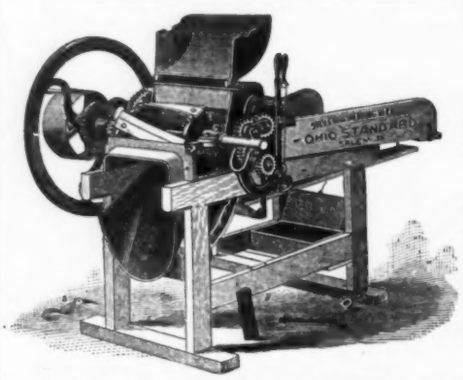
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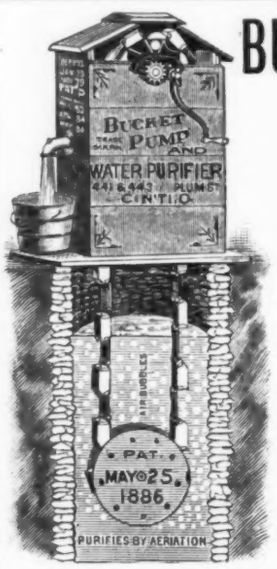
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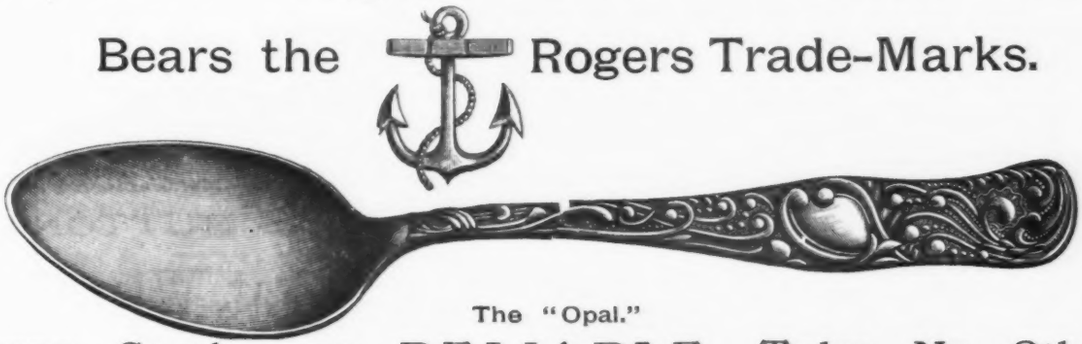
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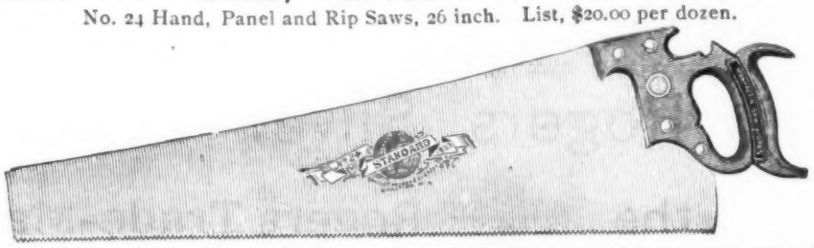
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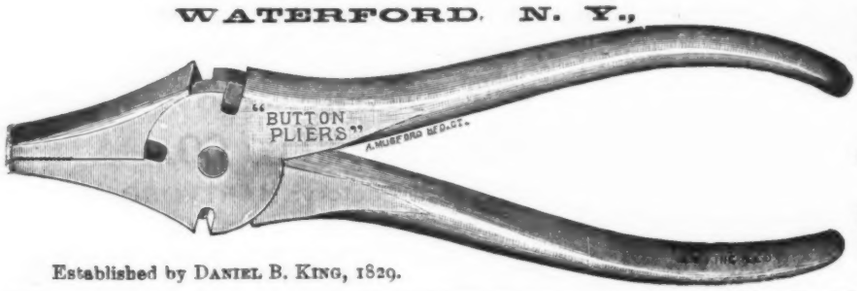
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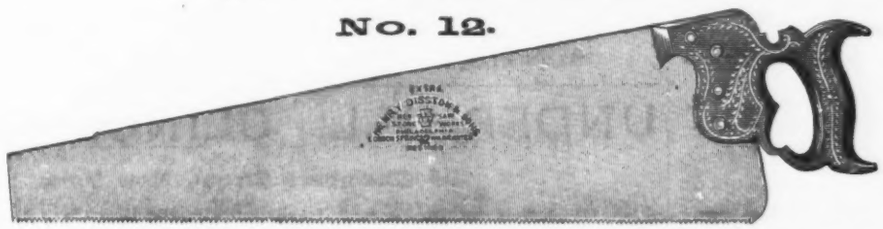
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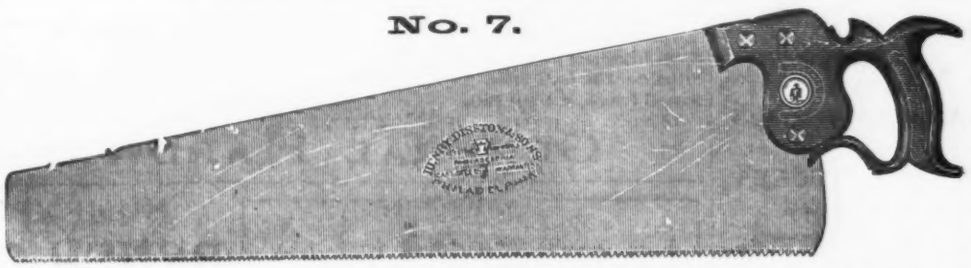
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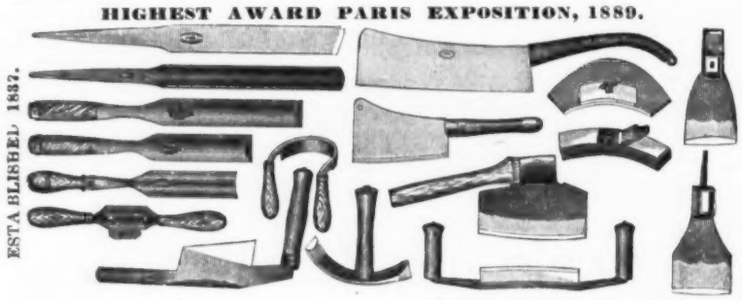
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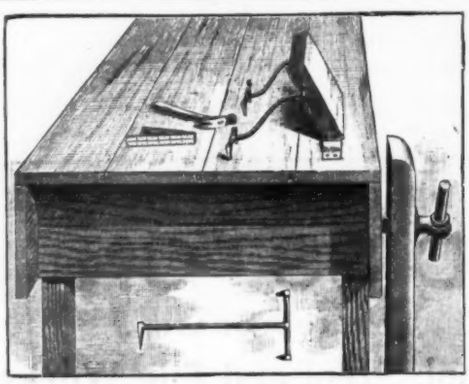
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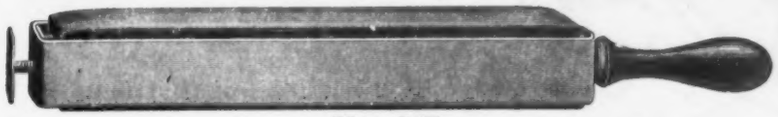
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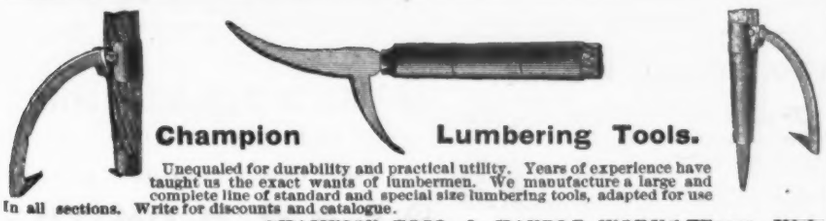
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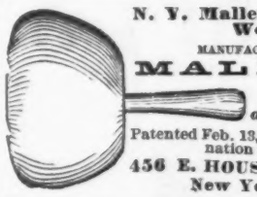
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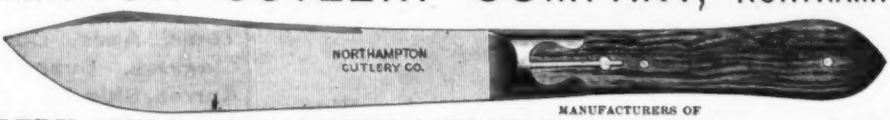
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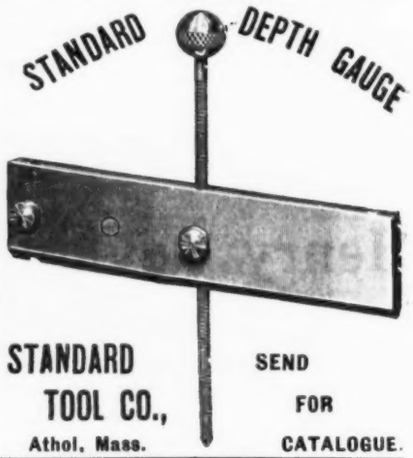
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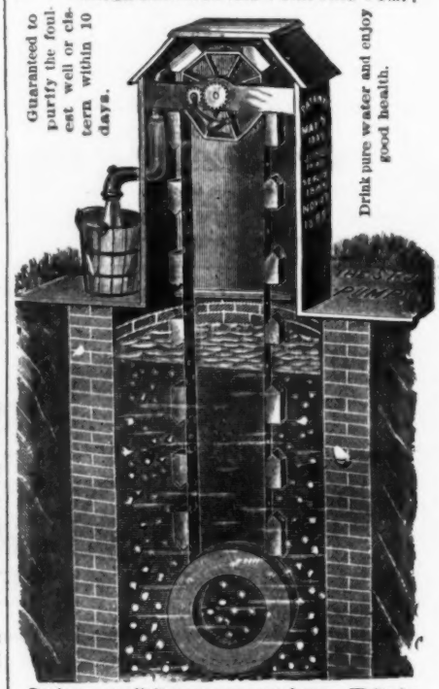
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Made of Best Scrap Iron!

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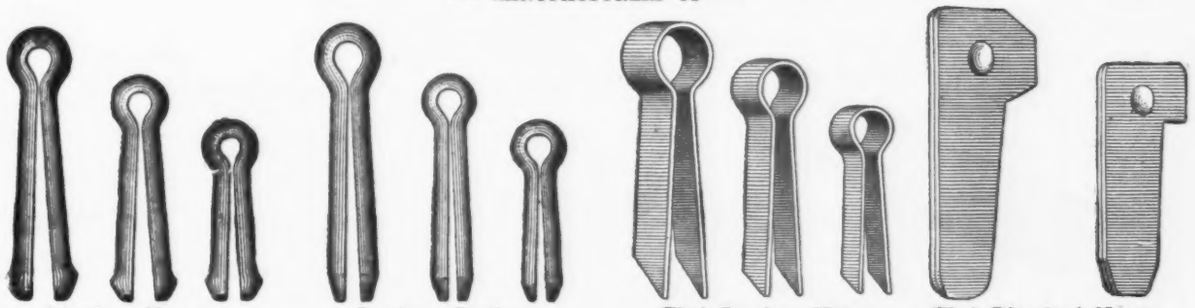
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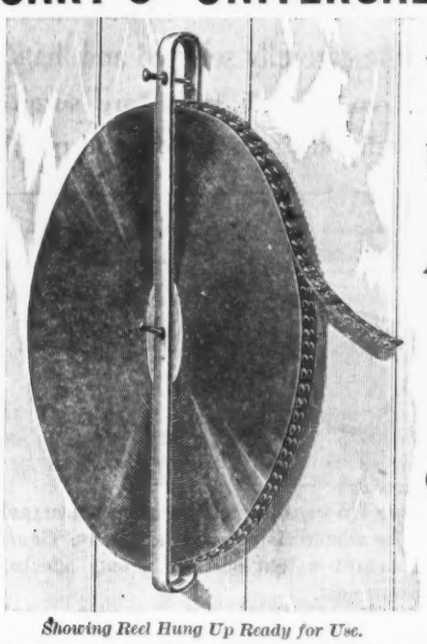
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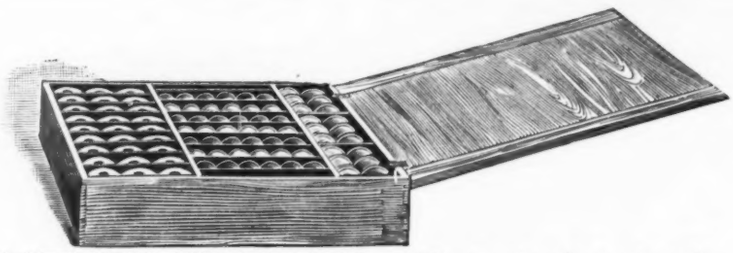
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"Conroy" Refrigerator Door Fasteners.
LIGHT BRASS CASTINGS
MADE TO ORDER.
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MADE OF WOOD JESSE JONES & Co
HARDWARE SHELF BOXES
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615 COMMERCE ST. PHILA.
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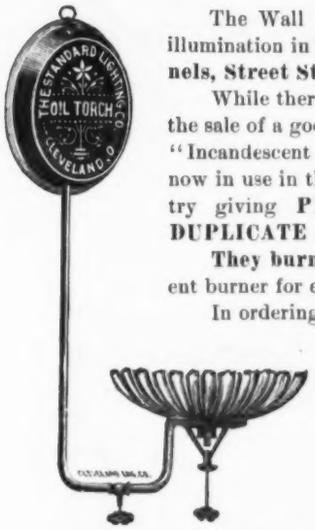


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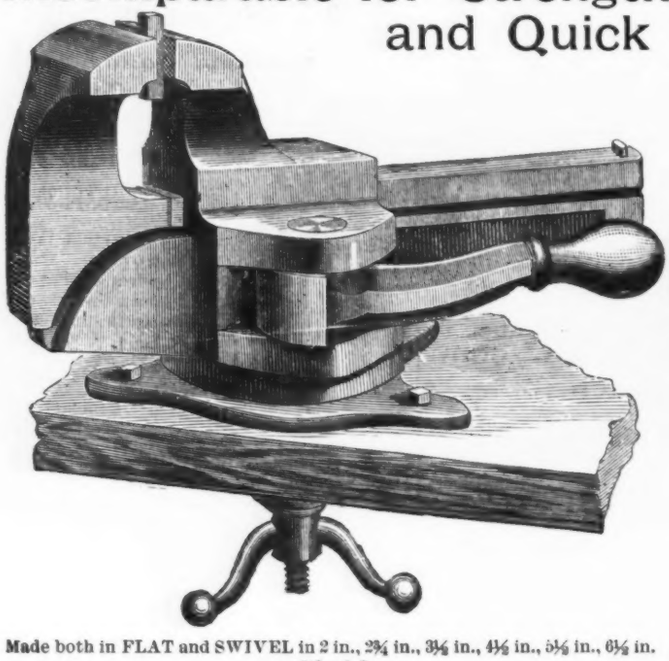
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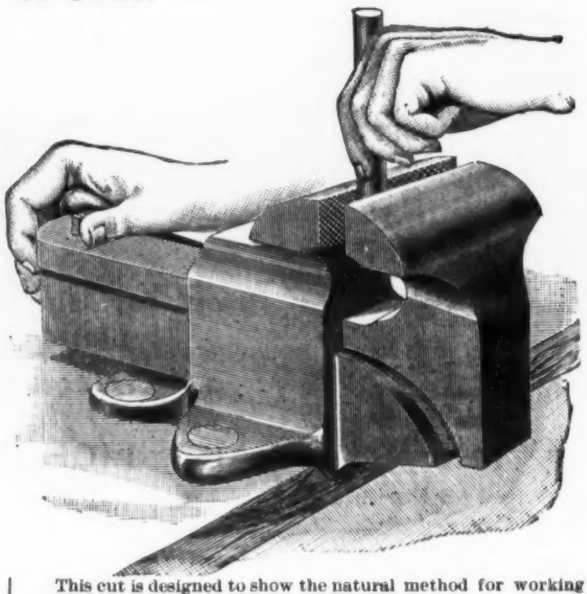
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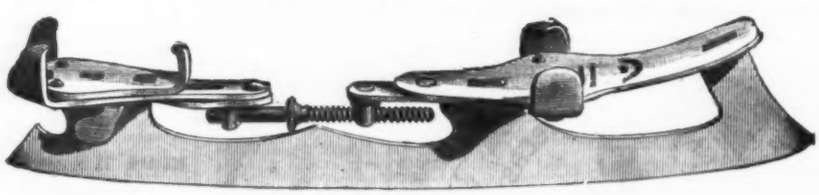
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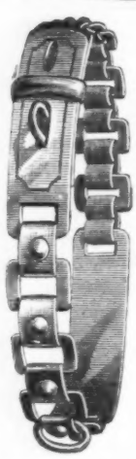
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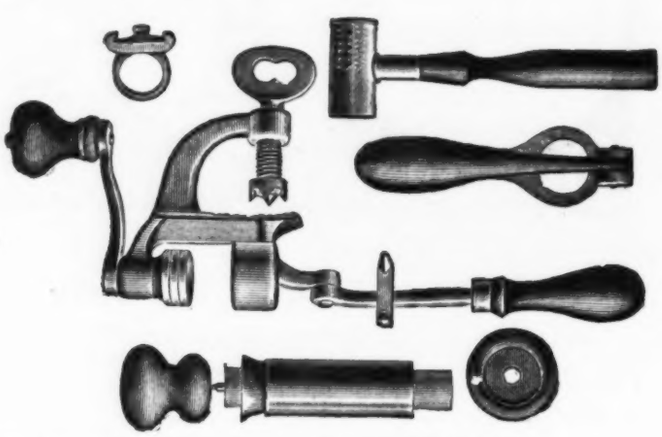


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HANDSOME, WATERPROOF, STRONG, SURE PRIMERS.

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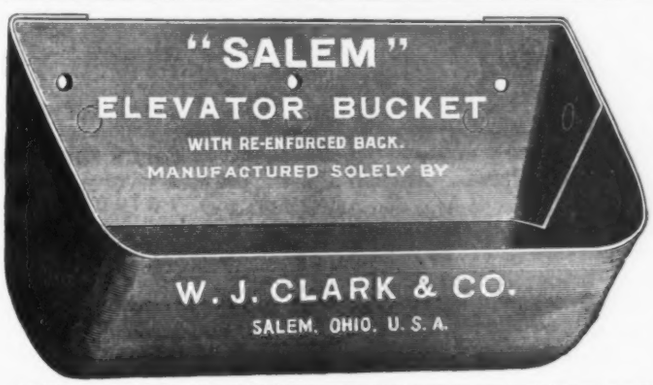
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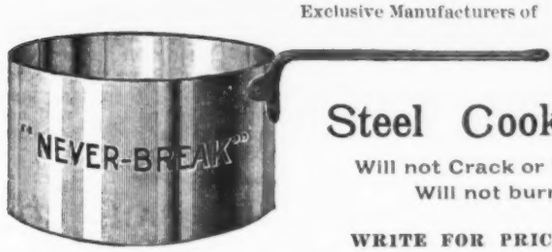
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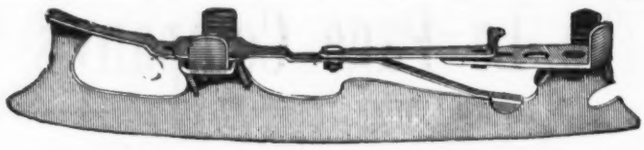


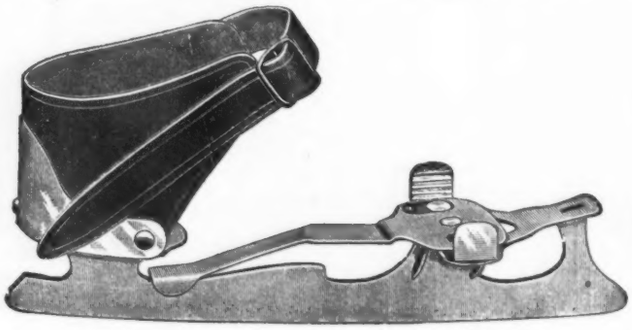
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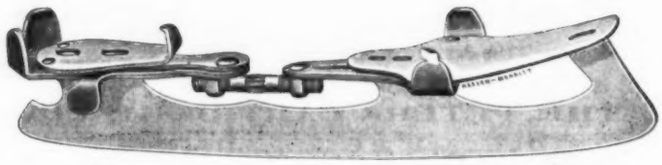
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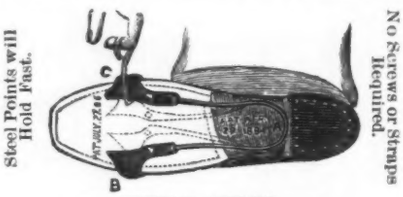
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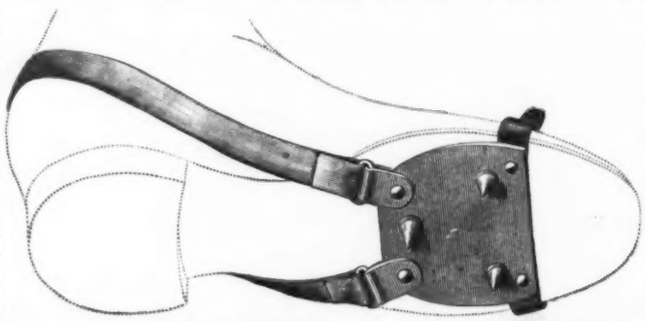
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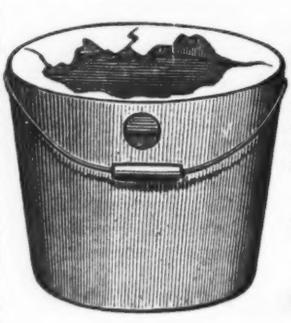
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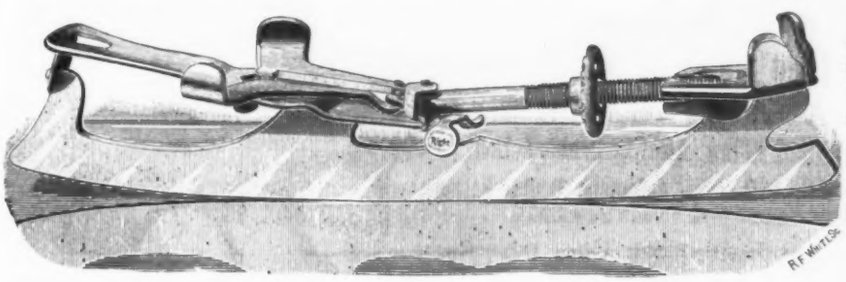
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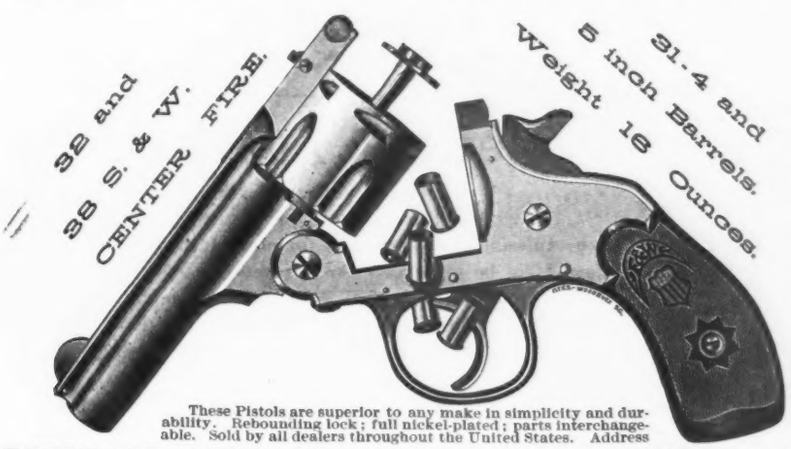
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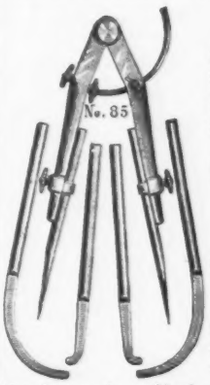
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REVOLVER.

Provided with Automatic Shell Extractor, Rebounding Lock.



CALIBRE 32, WEIGHT 14½ OZ.
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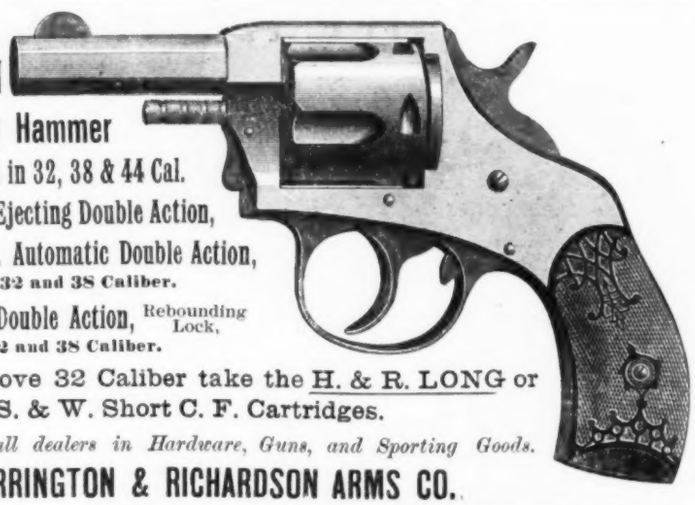
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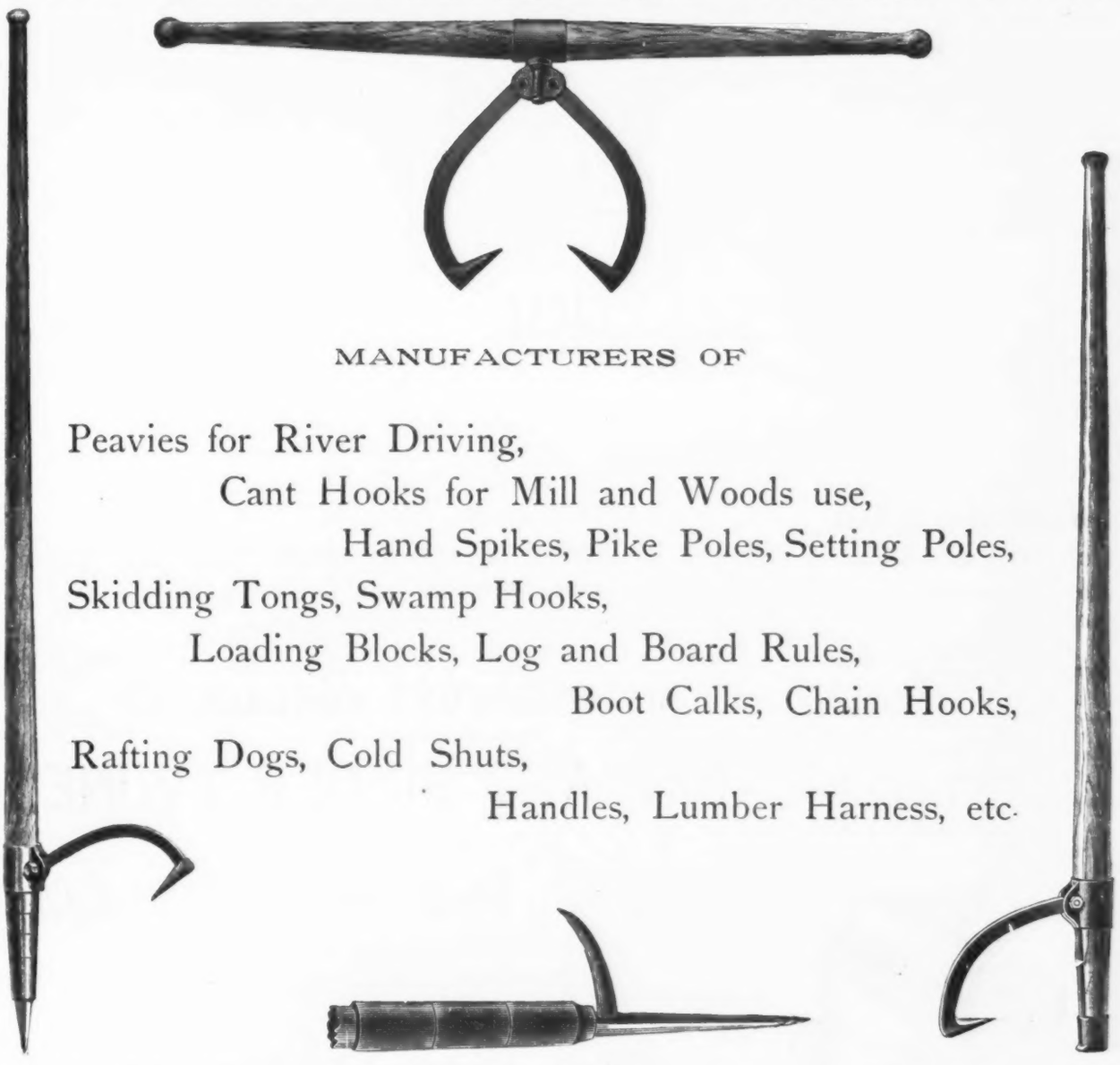
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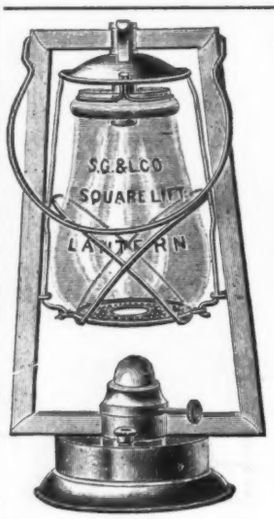
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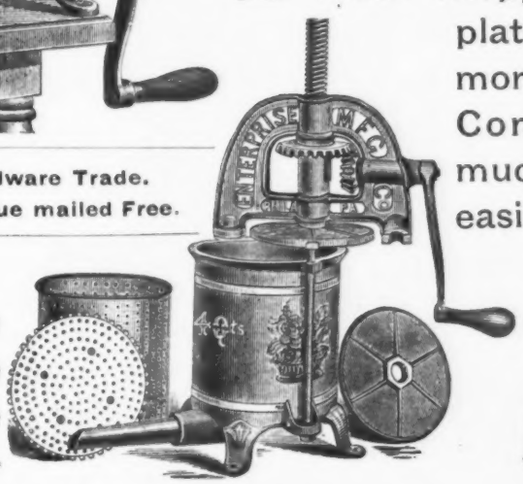
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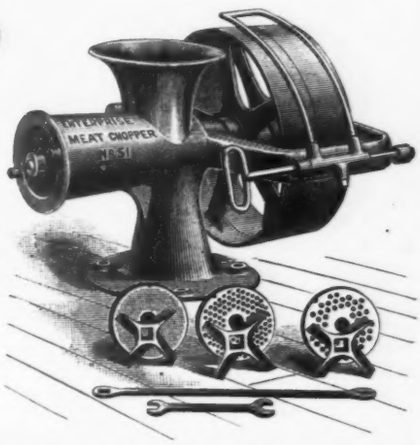
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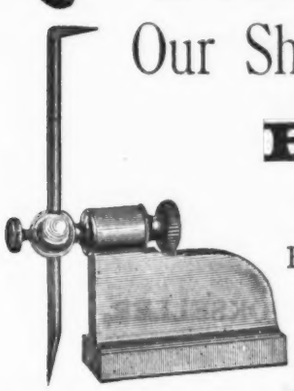


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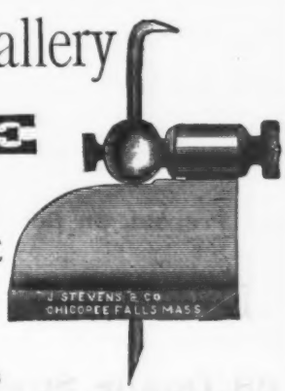
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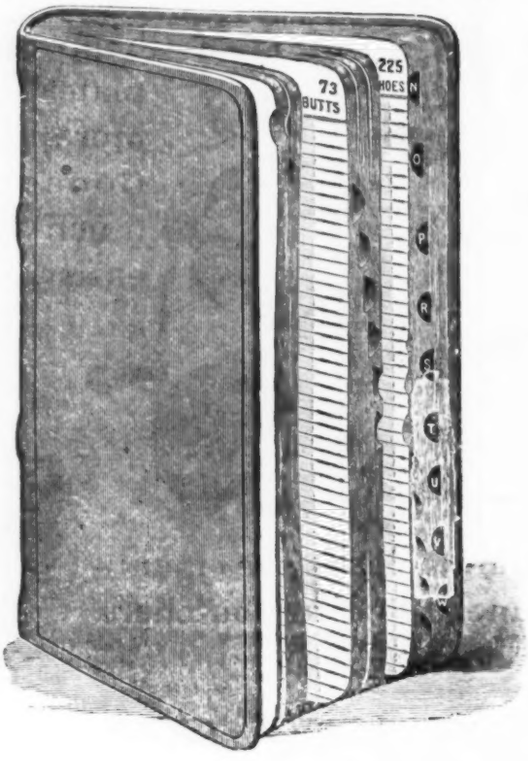
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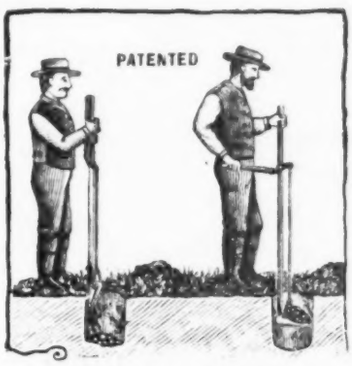


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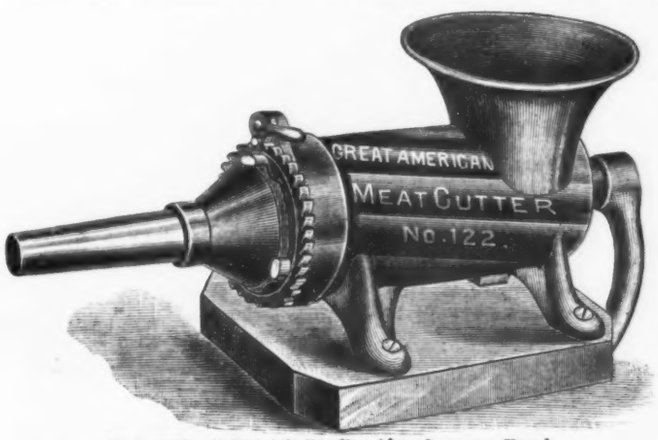


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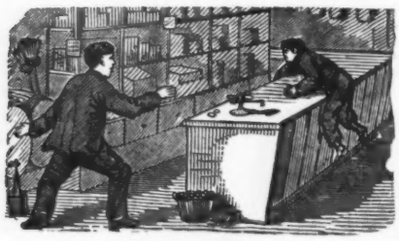
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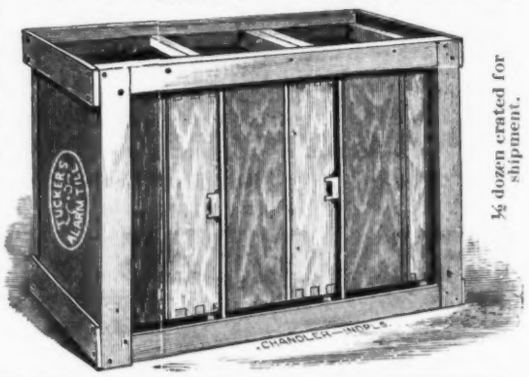
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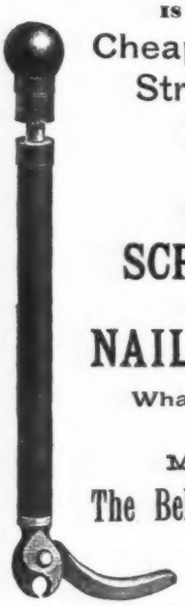
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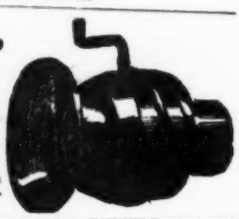
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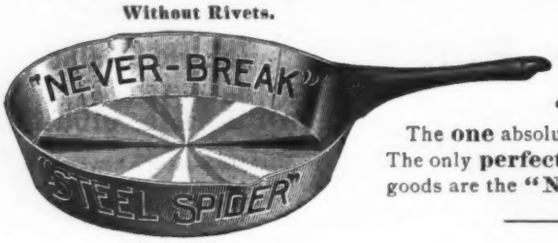
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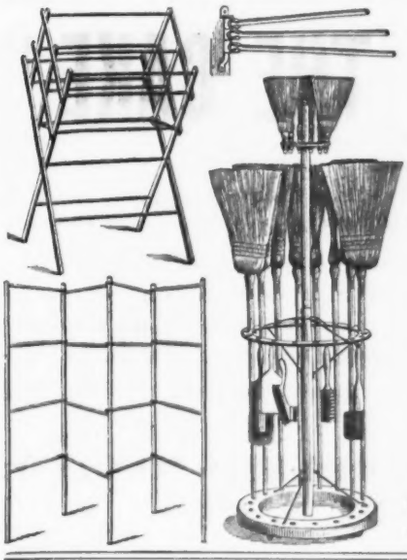


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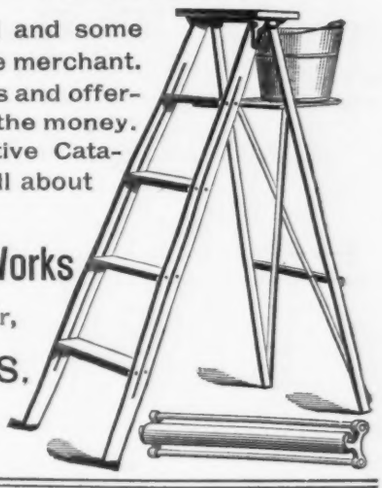
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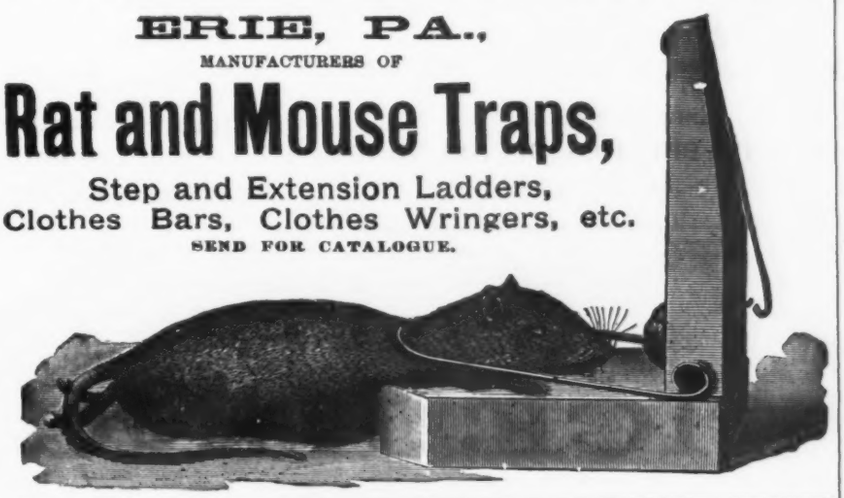
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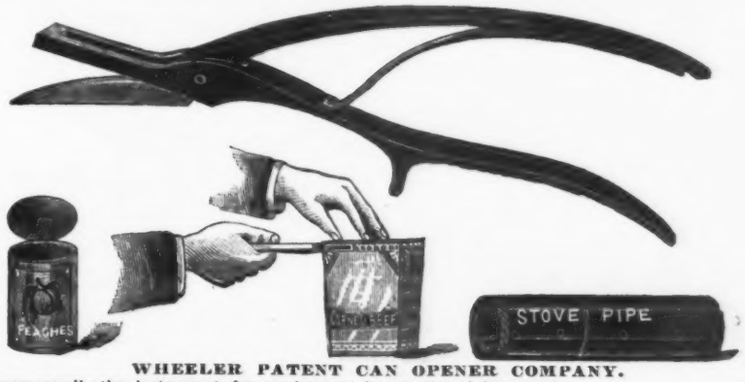
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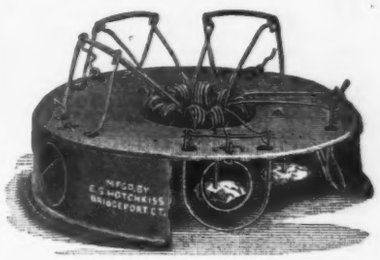
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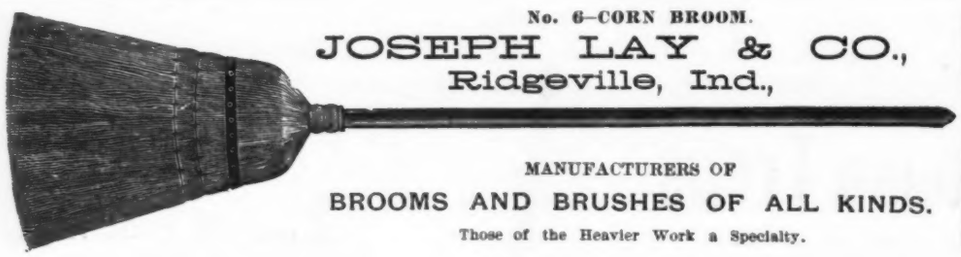
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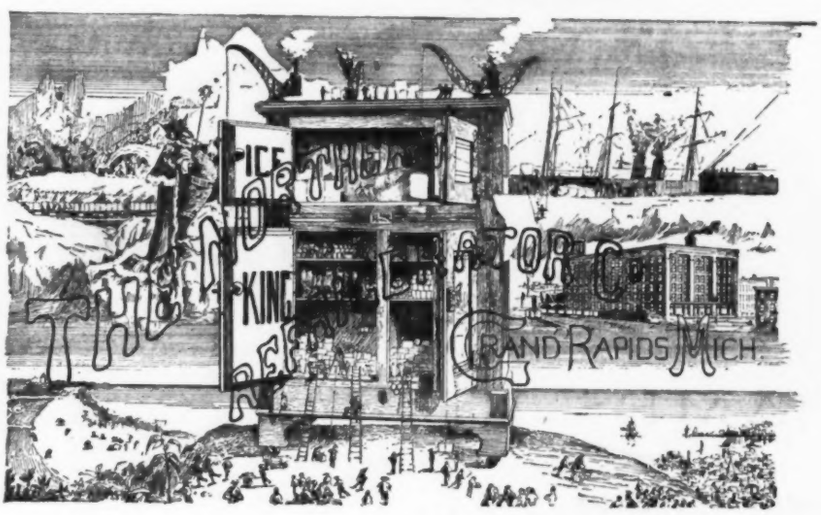
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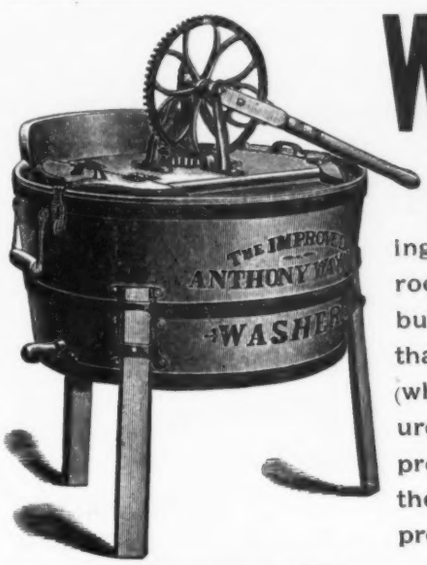
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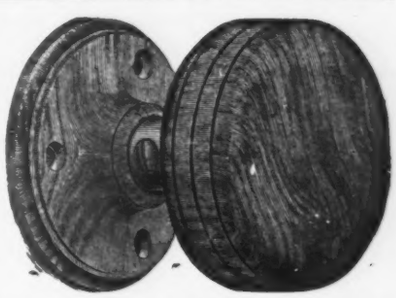
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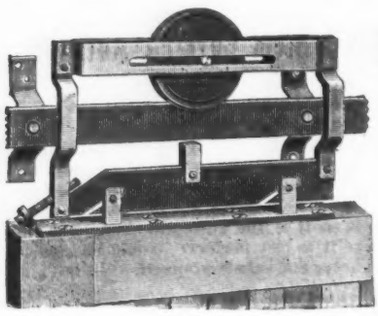
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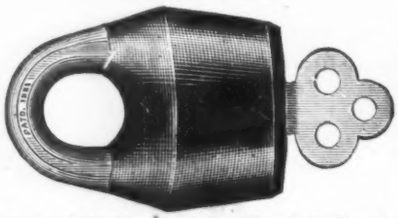
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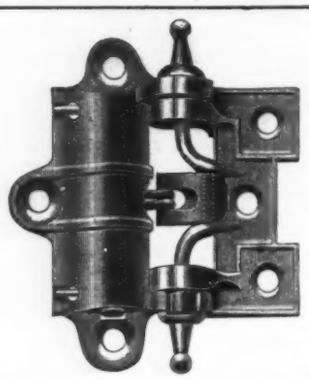


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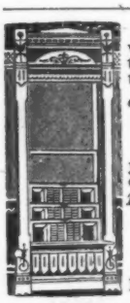


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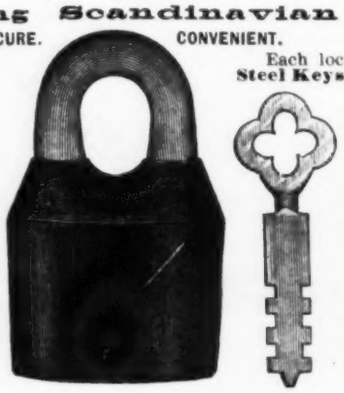
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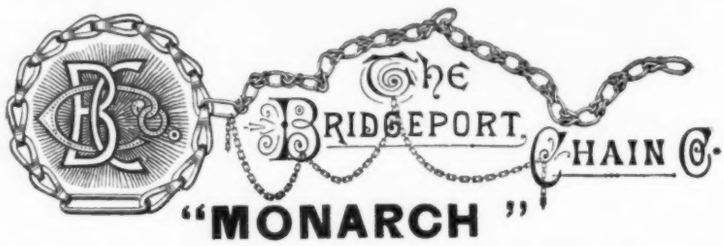


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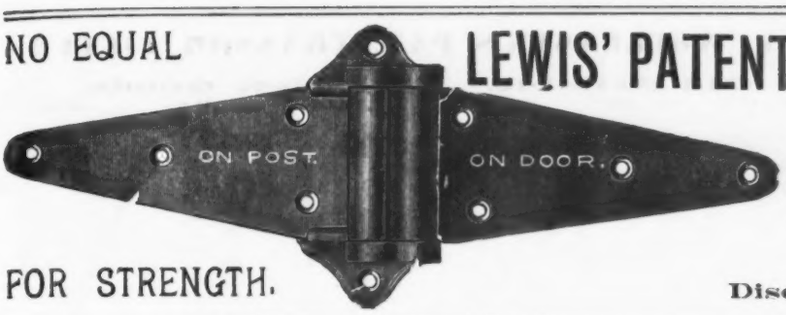
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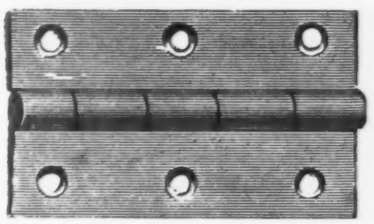


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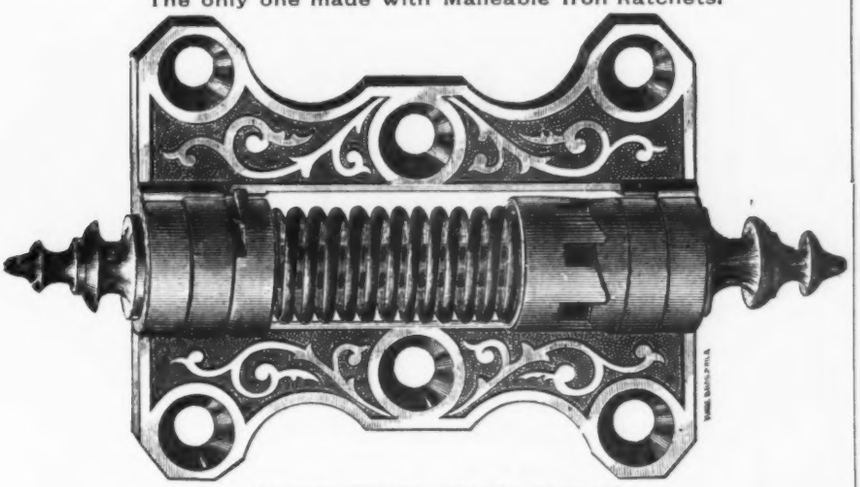
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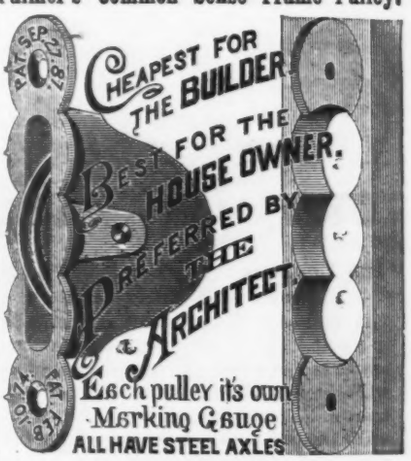
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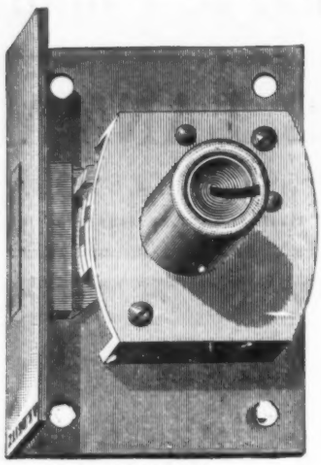
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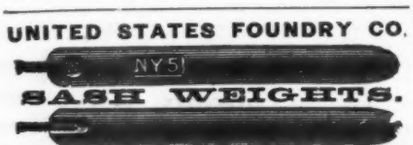
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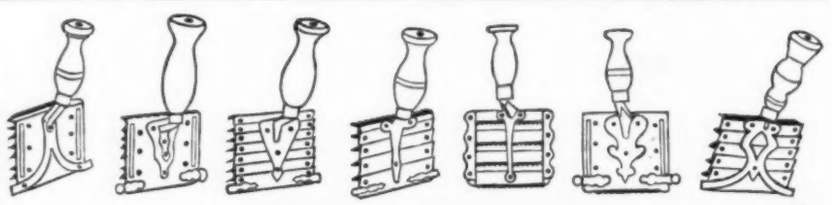
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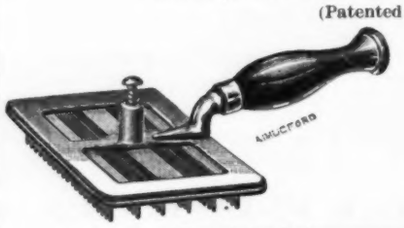
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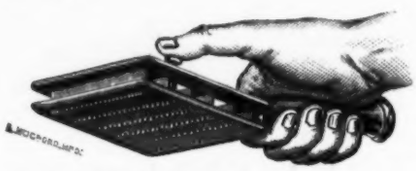
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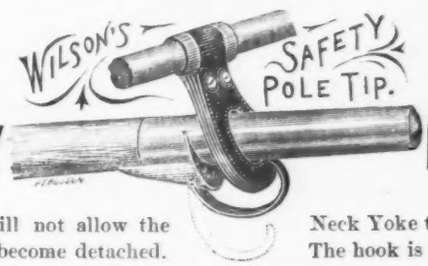


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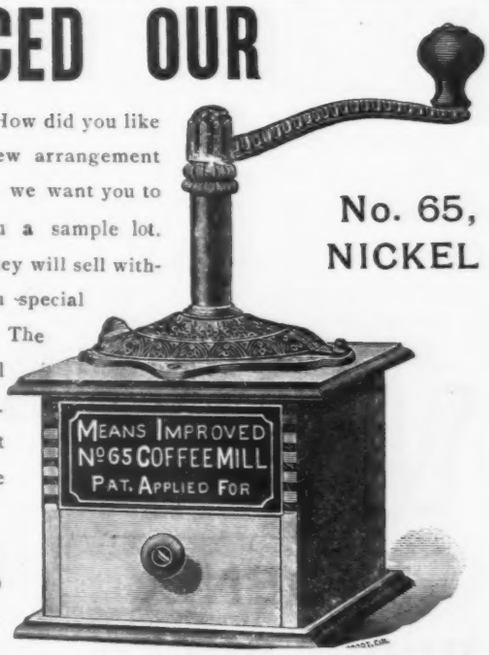
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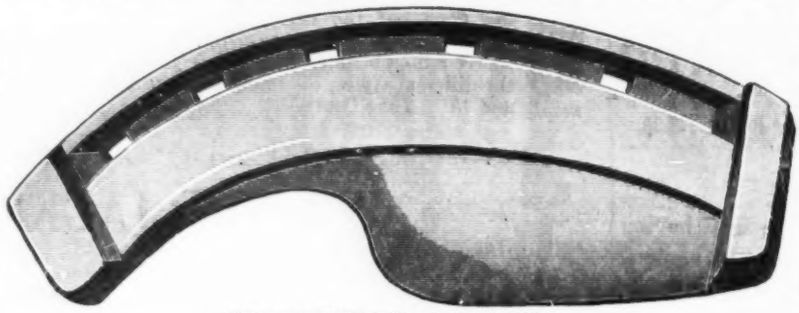
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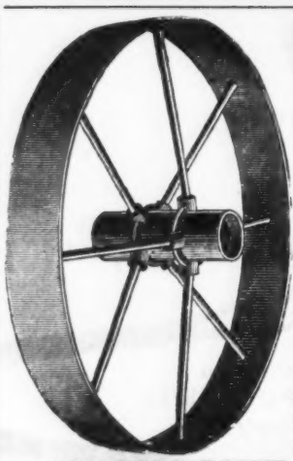
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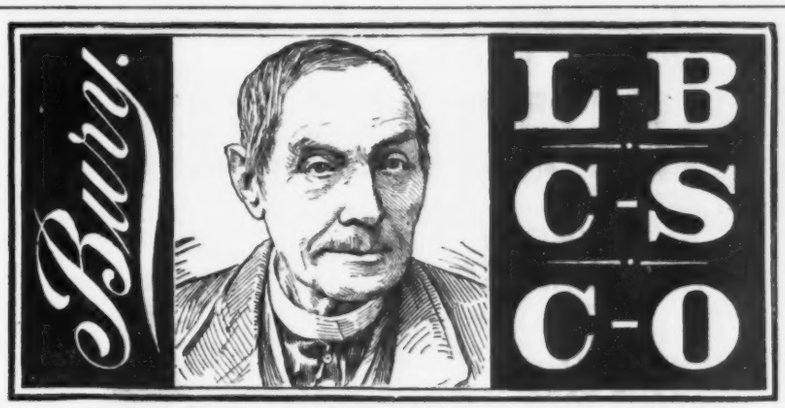
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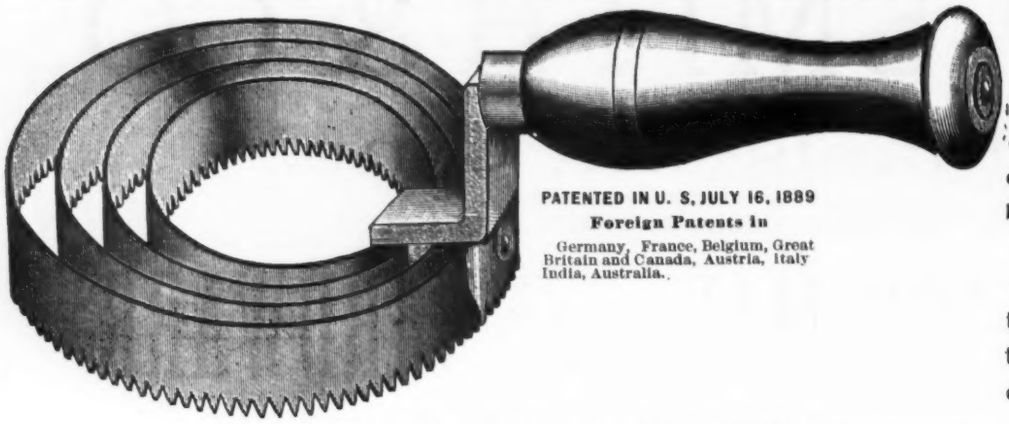
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PATENTED IN U. S, JULY 16, 1889

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A Comb that combines the strength of metal with the elasticity of a brush.

The flexibility of the loops makes this comb a wonderful device.

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NO MORE SWEARING ABOUT TOPS THAT WONT UNSCREW.

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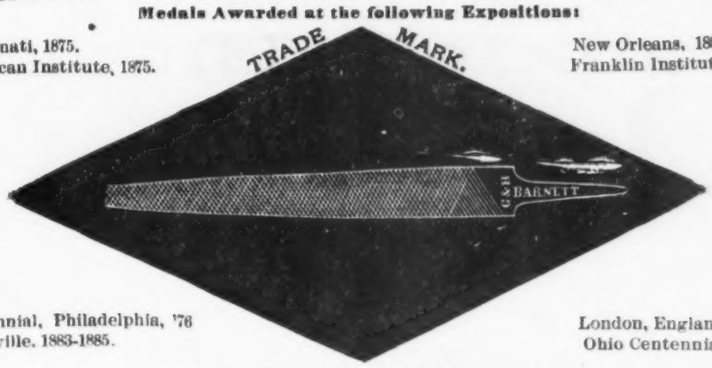
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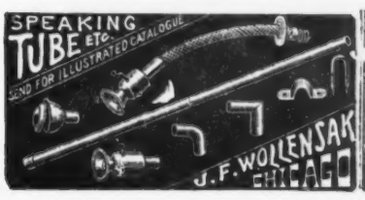
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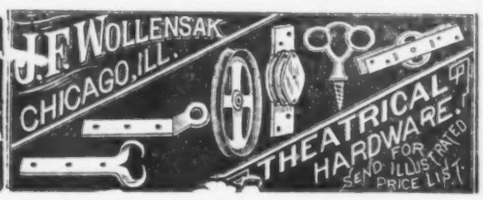
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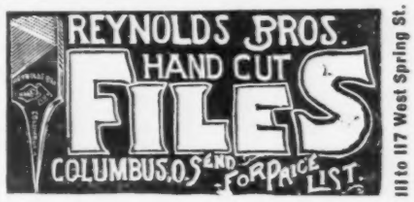
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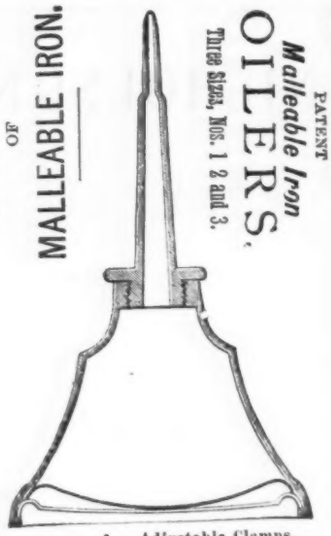
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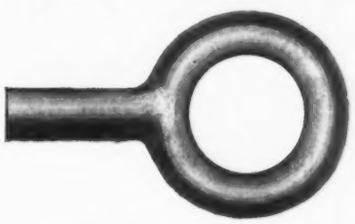


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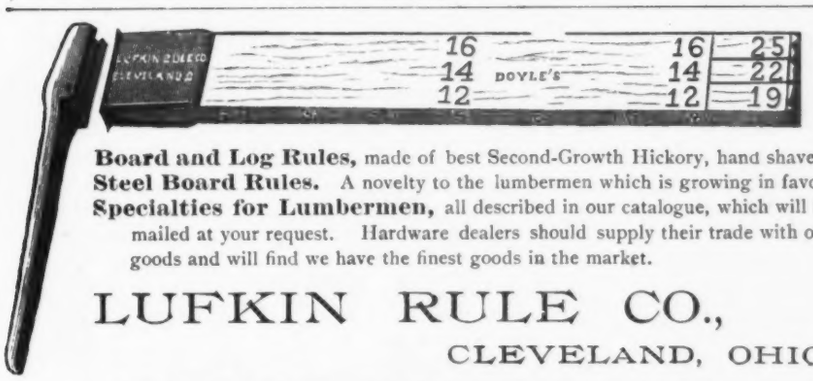
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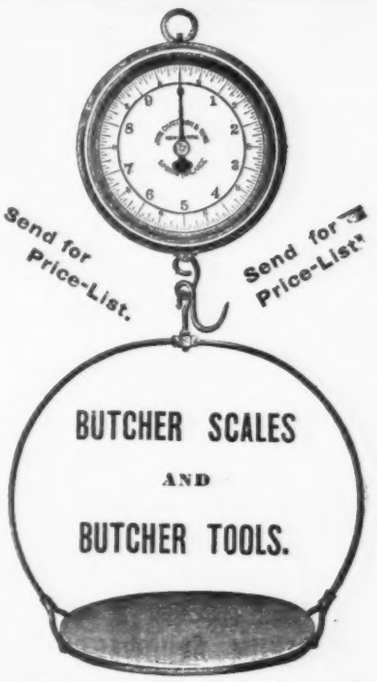
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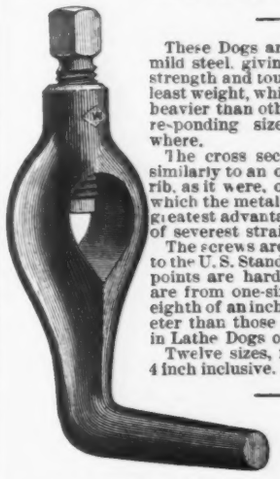


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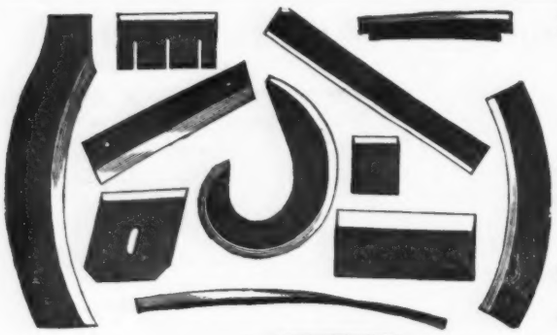
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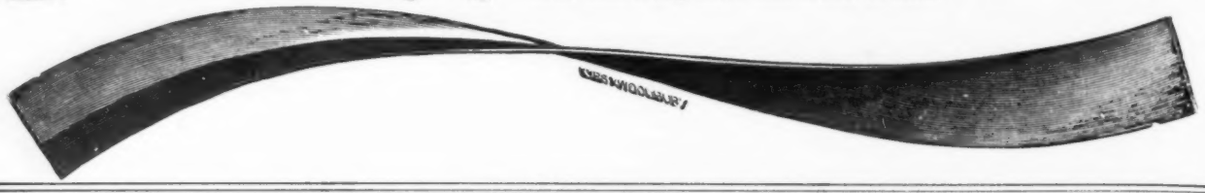
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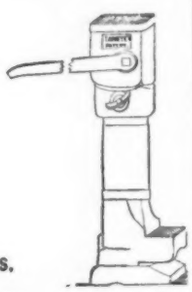
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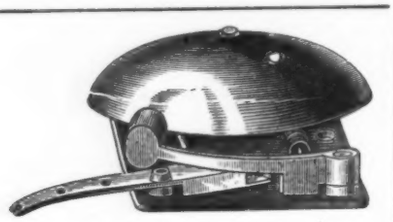


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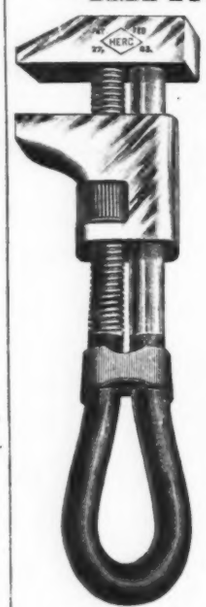
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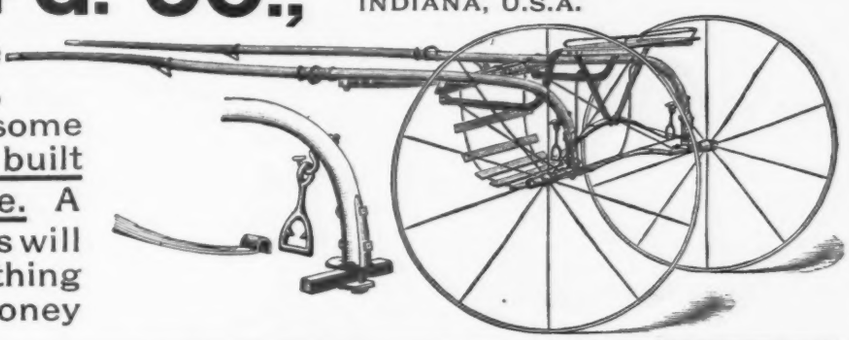
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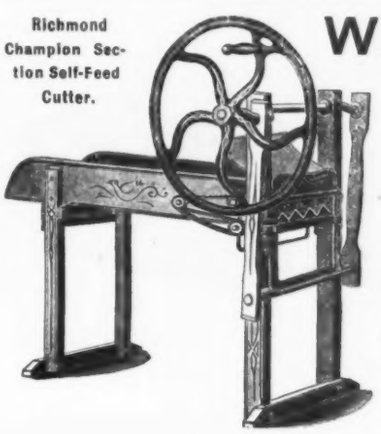
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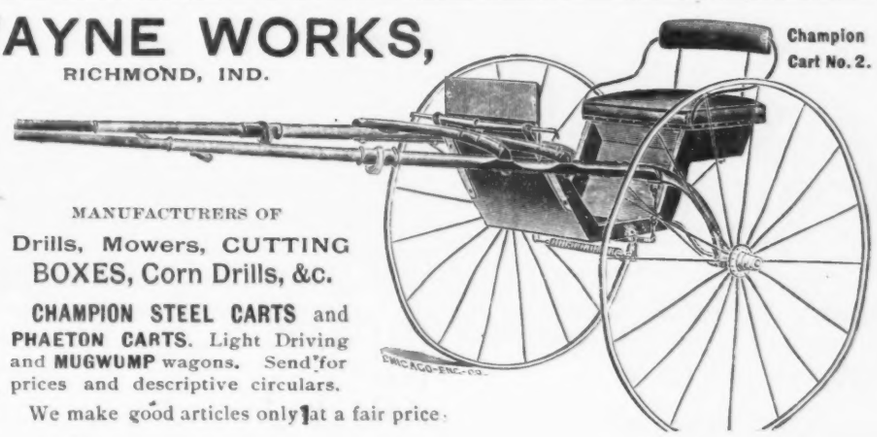
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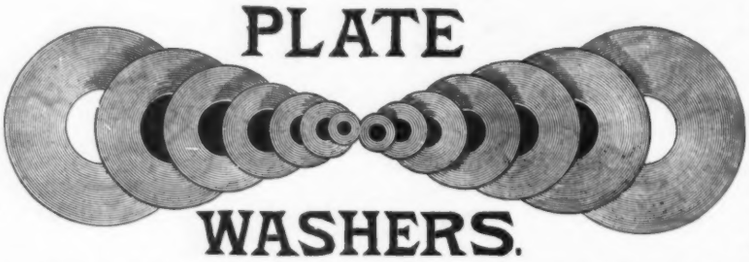
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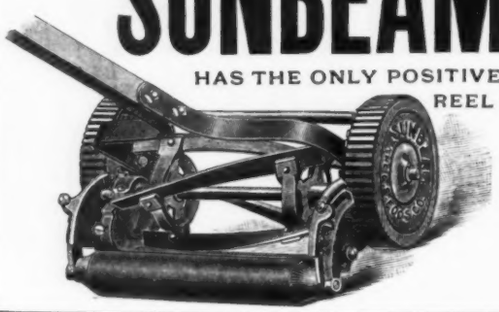


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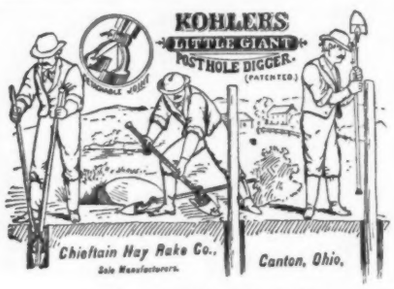
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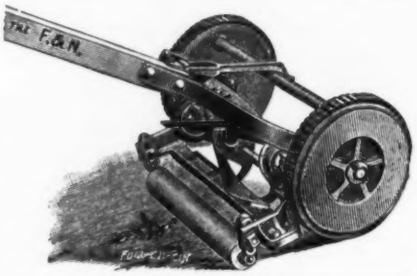
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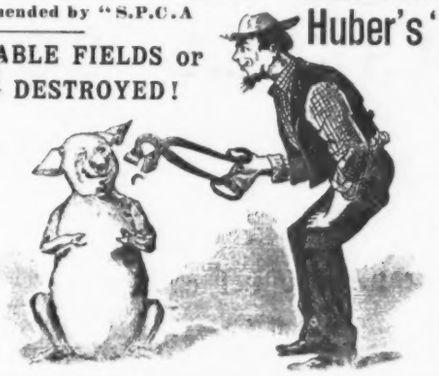
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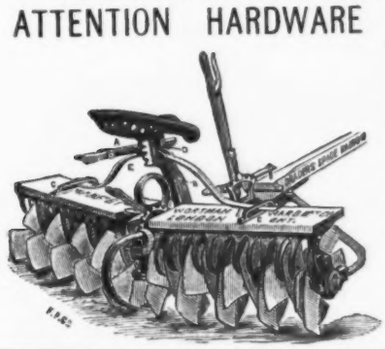
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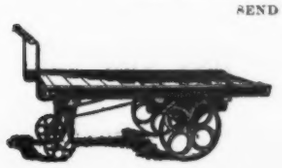
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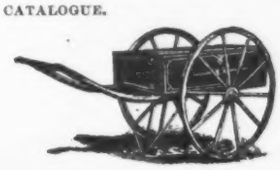
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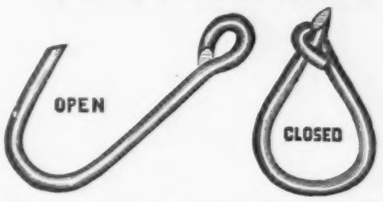






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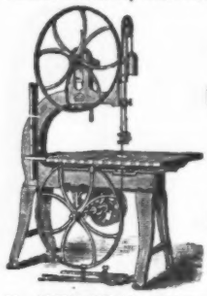
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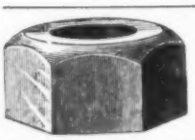
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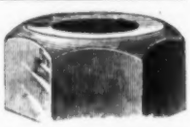


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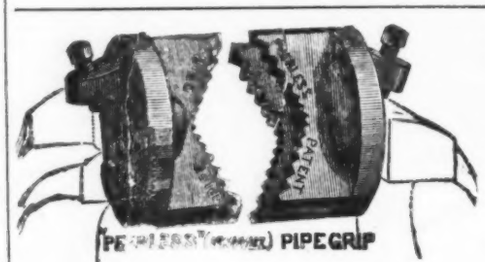
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Chemicals and Apparatus.
Eimer & Amend, 205 Third ave., N. Y.

Chisels, *Manufacturer of.*
Huck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Shepard, Sidney & Co., Buffalo, N. Y.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.
Means Mfg. Co., Lancaster, O.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited), 4 and 6 Warren, N. Y.

Conveyers.
Borden & Selleck Co., Chicago, Ill.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N. Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.

Cork Pullers.
Meriden Malleable Iron Co., Meriden, Conn.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Jersey City Galvanizing Co., Jersey City, N. J.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass
Southington Cutlery Co., Southington, Conn.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N. Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N. Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutlery Cases.
Torrey, J. R. & Co, Worcester, Mass.

Cutting Nippers.
Todd, H. B., Meriden, Conn.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Daubers.
Empire Portable Forge Co., Cohoes, N. Y.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.
Union Hdw. Co., Torrington, Conn.

Door Checks.
Morton Door Check & Spring Co., Boston, Mass.

Door Hangers, House and Barn.
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass.
Brown, McClure & Wales, Boston, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Burnham, G. & Co., Worcester, Mass.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Olmsted, L. H., Hasbrouck Heights, N. J.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wells Mch. Works, Fostoria, Ohio.
Wiley & Russell Mfg. Co., Greenfield Mass.
Woodward & Rogers, Hartford, Conn.

Dripping Pans.
St. Louis Dripping Pan Co., St. Louis, Mo.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Hanson, Van Winkle & Co., Newark N. J
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevators, *Makers of,*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery Wheels.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila,
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Foundry & Machine Dept., Harrisburg, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Lane & Bodley Co., Cincinnati, O.
Leffel Water Wheel & Engine Co., Springfield, Ohio
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Engraving and Printing.
Gies & Co., Buffalo, N. Y.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fence Machines.
Garrett, S. H., Mansfield, Ohio.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Reynolds Bros., Columbus, Ohio.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

(See Alphabetical Index, Page 106.)

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Flour Sifters.
Day, J. H. & Co., Cincinnati, Ohio.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Foot Rests.
Chicago Nickel Works, Chicago, Ill.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Cohoes, N. Y.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Fork Handles.
Iowa Farming Tool Co., Ft. Madison, Ia.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Collian, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Luftin Rule Co., Cleveland, O.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glass Tube Cutters.
Hunt & Connell, Ltd., Scranton, Pa.

Glue.
LePage Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Norton Emery Wheel Co., Worcester, Mass.
Star Machine Co., Philadelphia, Pa.

Grinding Mills.
Hill, A. M., New Haven, Conn.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brittan, Graham & Mathes. Pittsburgh, Pa.
Chautrell Tool Co., Reading, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. & Co., 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit. Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co.. West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Brown, J. H. & Co., Chicago, Ill.
Comstock, W. A. & Co., Chicago, Ill.
Lamotte, T. A., Philadelphia, Pa.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, N. Y.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails. *Makers of.*
Ausable Horse Nail Co., 4 Warren, N.Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes. *Makers of.*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman. 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Lukens Iron & Steel Co., Coatesville, Pa.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussentus & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 & 459 Water, N. Y.
Keeley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Ironware, Galvanized.
Hill, Jas. Mfg. Co., Providence, R. I.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Pryibil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
"Champion."
F. & N. Lawn Mower Co., Richmond, Ind.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes
"Champion."
Gibbs Mfg. Co., Canton, O.
Graham, John H. & Co., 113 Chambers St., N. Y.

Lawn Sprinklers.
McGowan, J. H. Co., Cincinnati, O.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.
Morley Bros., E. Saginaw, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Bertsch & Co., Cambridge City, Ind.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fairmount Mch Co., Philadelphia, Pa.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Garvin Mch. Co., 139 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
National Machinery Co., Tiffin Ohio.
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L, Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
King, J. M. & Co., Waterford, N. Y
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Charlestown, W. Va.
Pittsburgh, Kan.
Saugerties, N. Y.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Hagen & Reid, W. Troy, N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Neck Yokes.
Covert, E. Mfg. Co., Farmer Village, N.Y.

Nickel Platers' Supplies.
Hanson, Van Winkle & Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y.

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Reed & Prince, Worcester, Mass.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville Conn.

Oil.
Sun Oil Line Co., Toledo, Ohio.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chailleux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord. Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Spiral Weld Tube Co., 43 John N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman. 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio
Graham, Jno. H. & Co., 113 Chambers, N. Y.

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Power Punches and Shears.
Ferracute Mch. Co., Bridgeton, N. J.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Bucket Pump Co., Cincinnati, Ohio.
Columbiana Pump & Machine Co., Columbiana, Ohio
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, O.

(See Alphabetical Index, Page 106.)

Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Wais & Roos, Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Refrigerators.
Northern Refrigerator Co., Grand Rapids, Mich.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Reed & Prince, Worcester, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.
Wayne Works, Richmond, Ind.

Rolling Mill Machinery.
Birmingham Iron Fdry, Pirmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Cambridge Roofing Co., Cambridge, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules, *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Dieni & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Cord Fasteners.
Empire Portable Forge Co., Cohoes, N.Y.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Empire Portable Forge Co., Lansingburg, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Barney & Berry, Springfield, Mass.
Dame, Stoddard & Kendall, Boston, Mass.
Diaz, R. M. Co., Boston, Mass.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.
Wollensak, J. F., Chicago, Ill.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Devlin, Thos. & Co., Philadelphia, Pa.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Hammers, &c., *Makers of.*
Dieneit & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Boker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess, Cook & Co., Pittsburgh, Pa.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co!, Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Cincinnati Tool Co., Cincinnati, Ohio.
Humphrey Tool Co., Warren, Mass.
Jennings, C. E. & Co., 97 Chambers, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasoline.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.
Standard Lighting Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.
Sherwood Mfg. Co., Buffalo, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Colby Hdw. & Electric Co., Chicago, Ill
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 25 Dey, N. Y.
Tower & Lyon, 95 Chambers, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washing Machines.
Wayne, Anthony Mfg. Co., Ft. Wayne Ind.

Washers.
Milton Mfg. Co., Milton, Pa.

Water Motors.
Belknap Motor Co., Portland, Me.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y
Fuller Bros. & Co., 139 Greenwich, N. Y.
*Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire and Rod Cutters.
Collins-Goodin Mfg. Co., St. Louis, Mo.

Wire Dies.
McFarland, Wm., Trenton, N. J.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jeuckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty, Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
New Castle Wire Nail Co., New Castle, Pa.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
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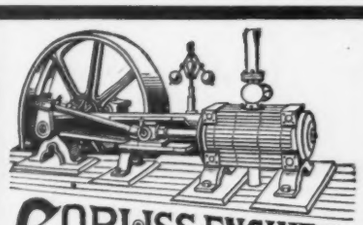
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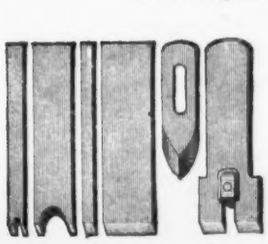
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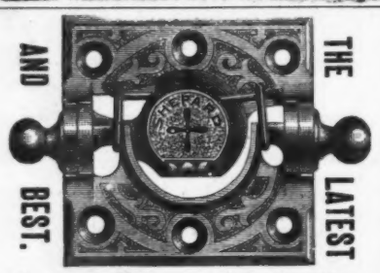
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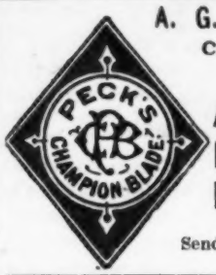
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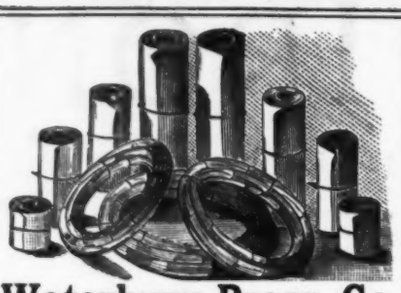
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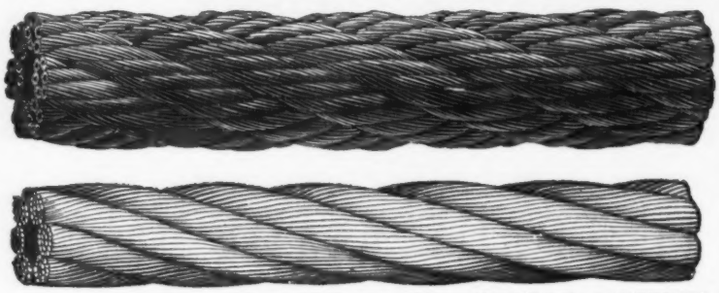
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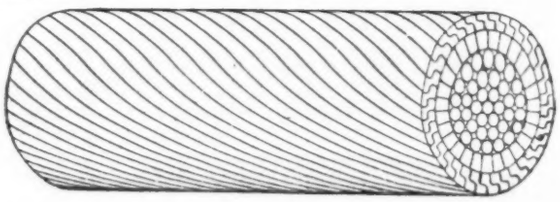
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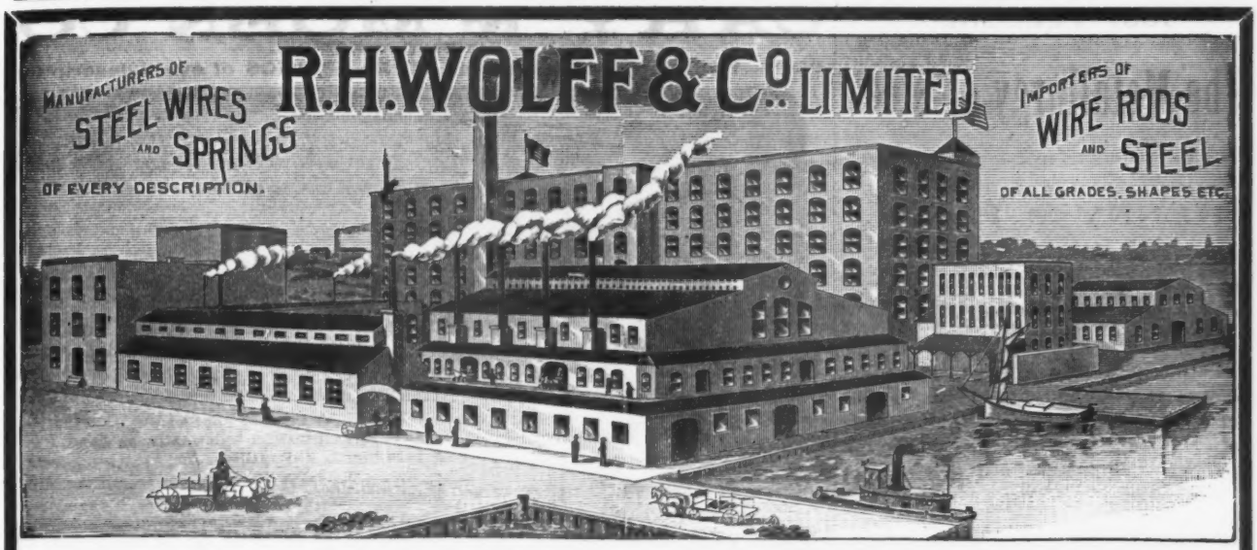
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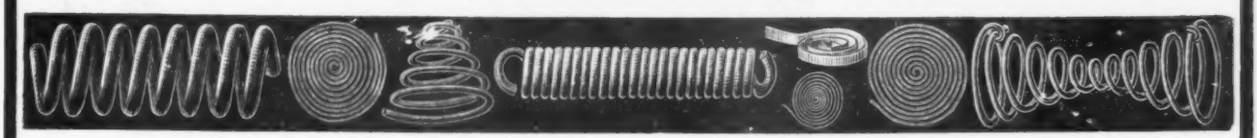
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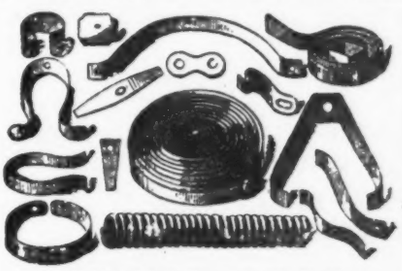
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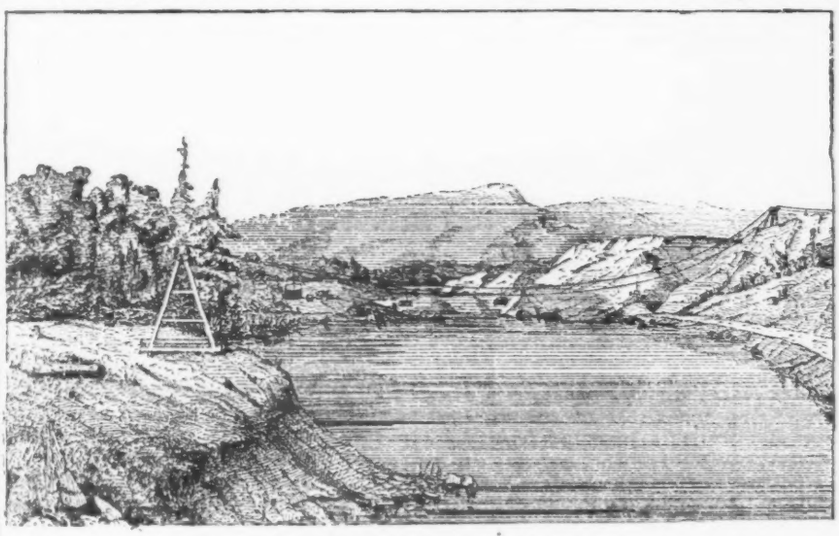
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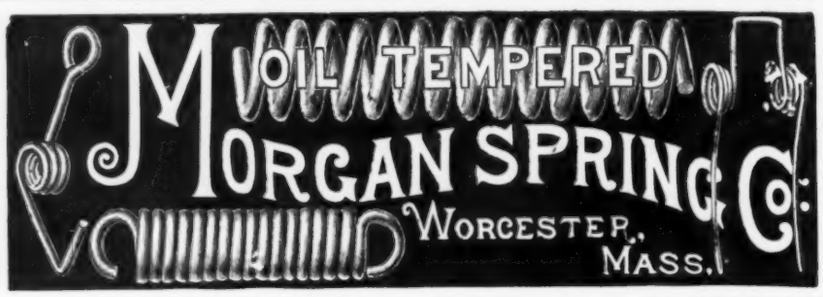
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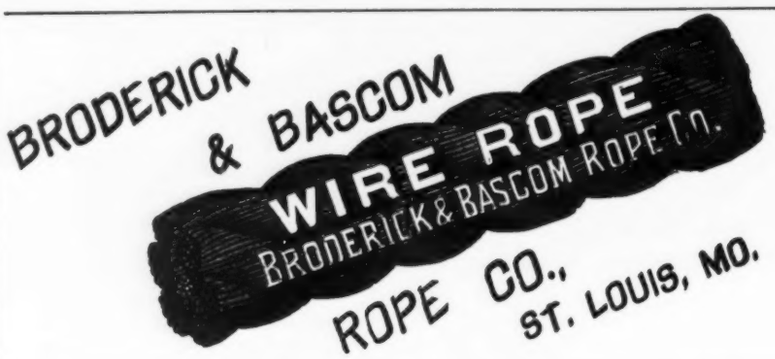
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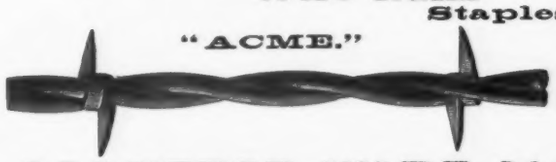
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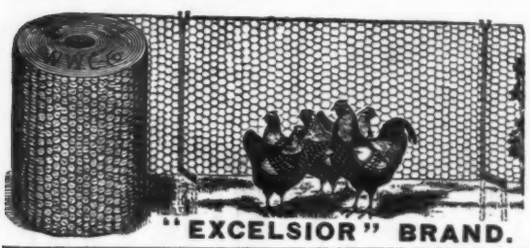
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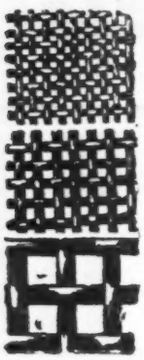
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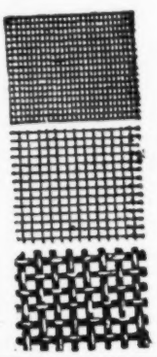
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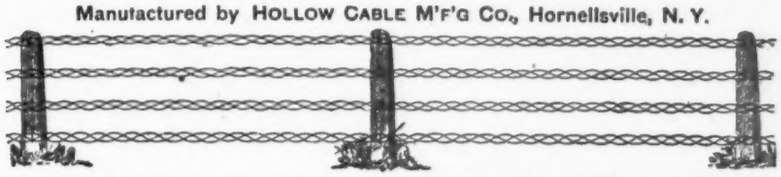
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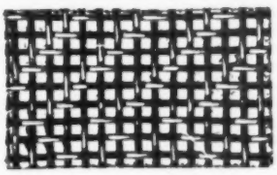


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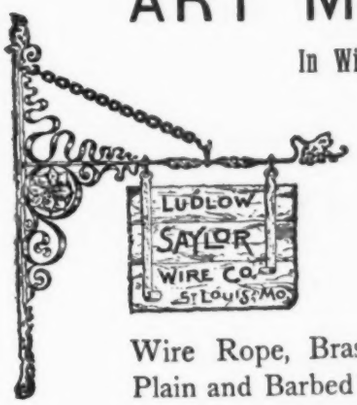
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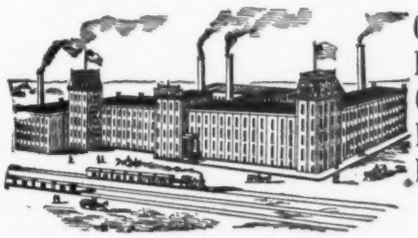
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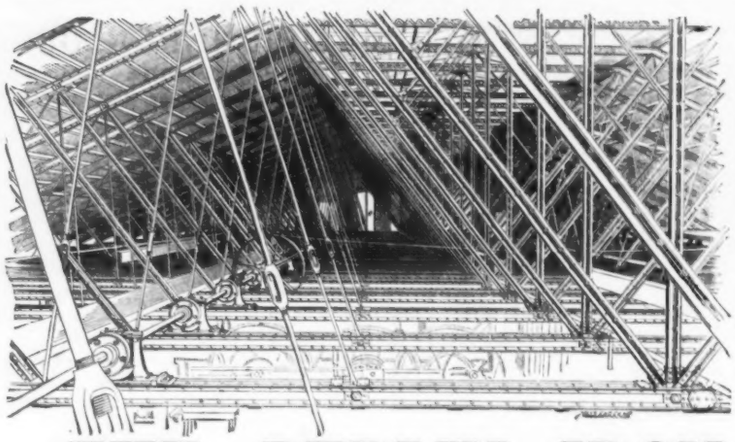
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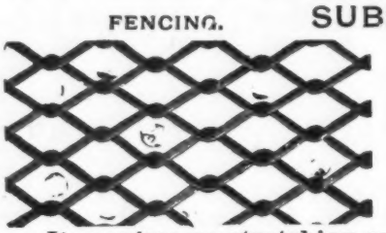
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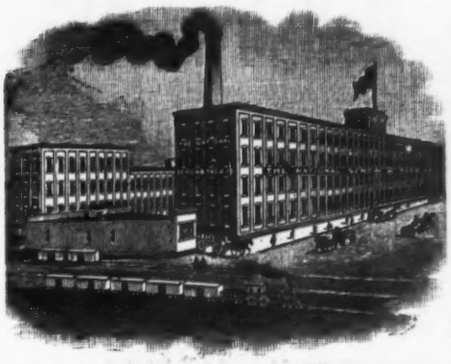
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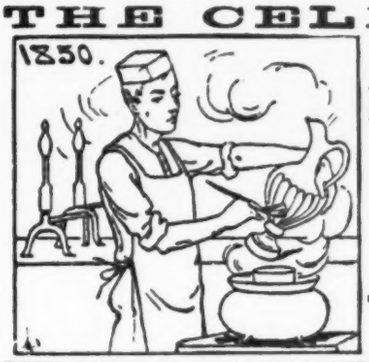
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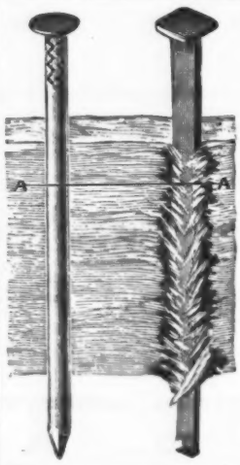
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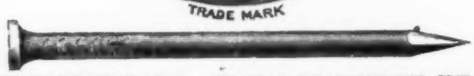
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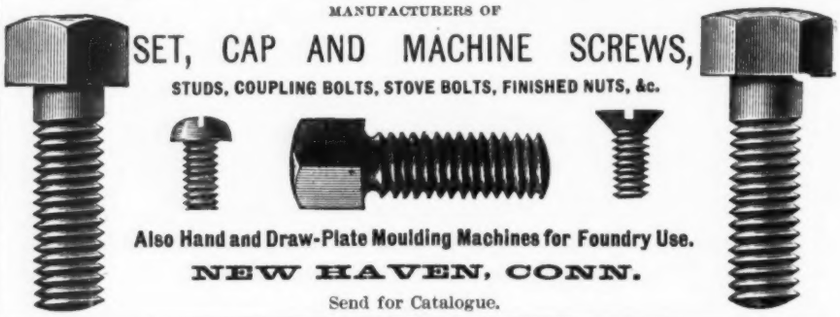
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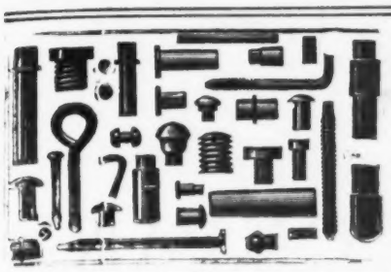
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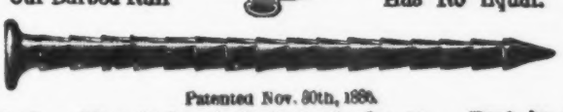
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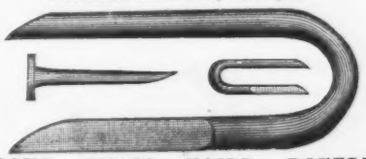
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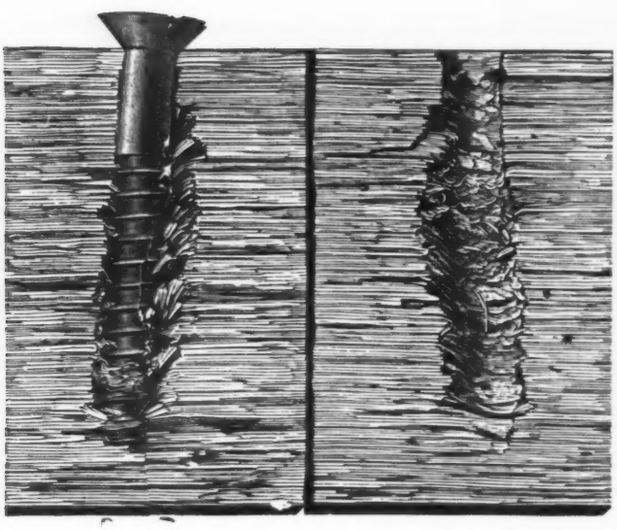
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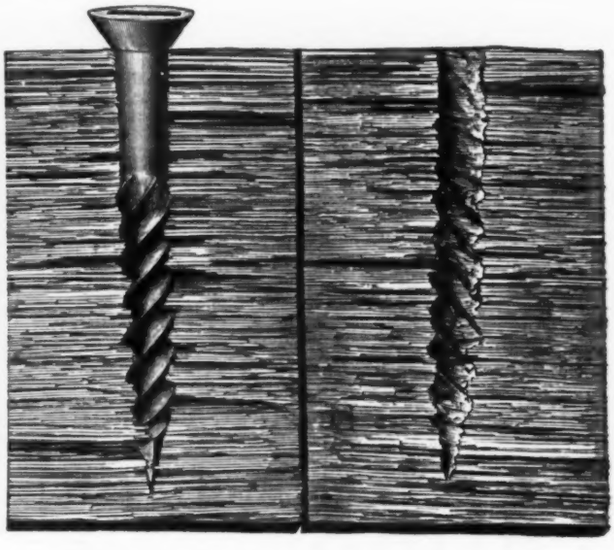
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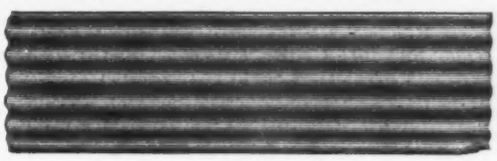
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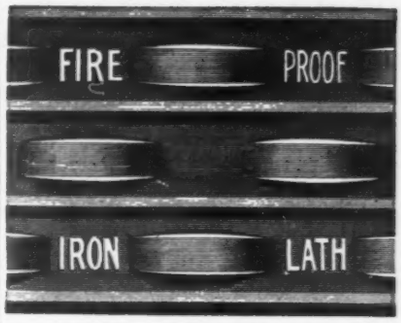
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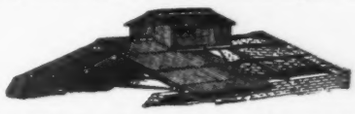
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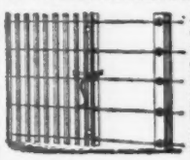
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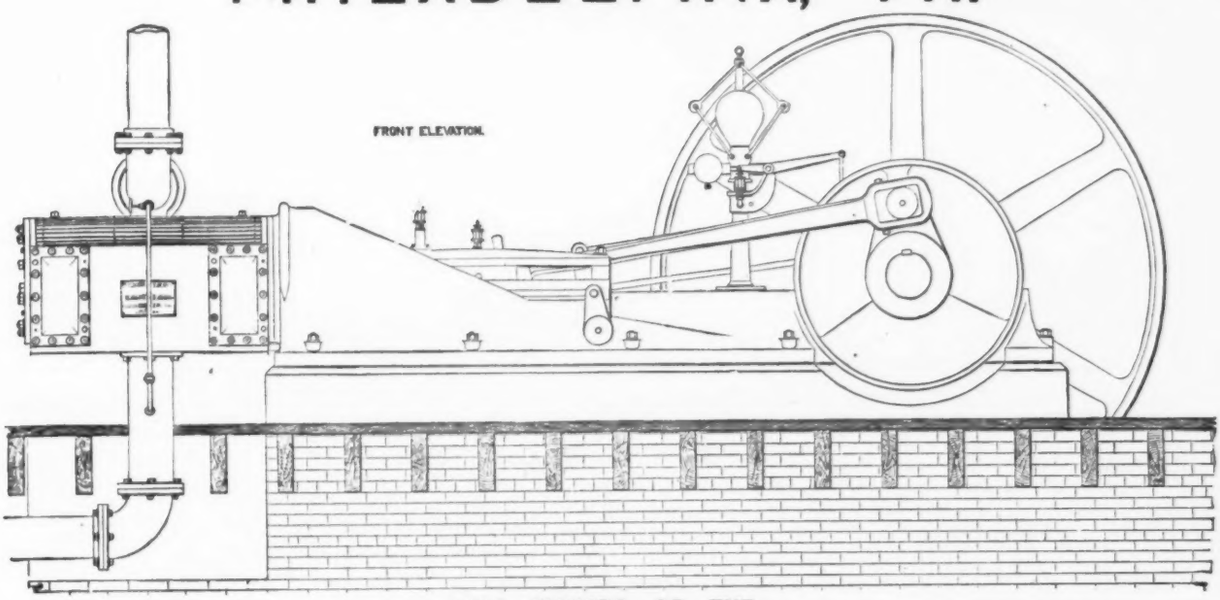
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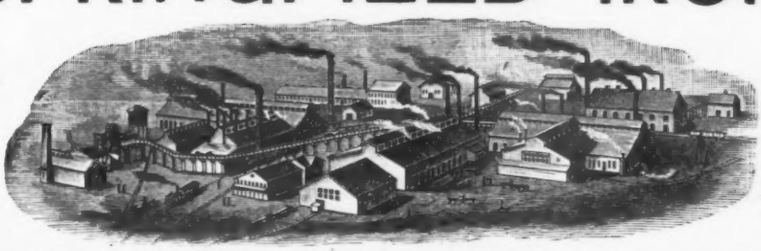
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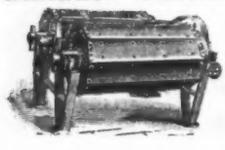
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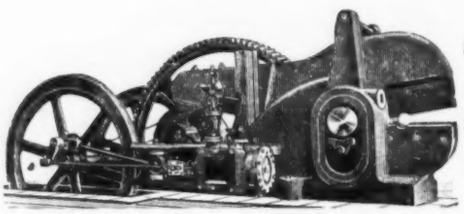
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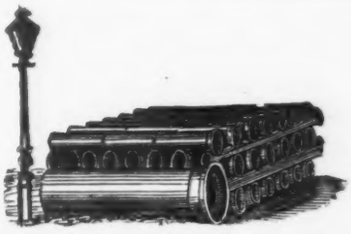
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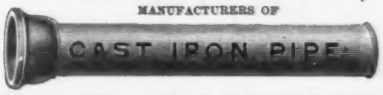
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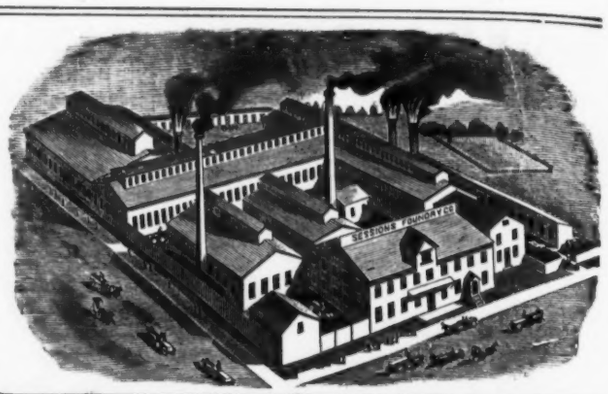
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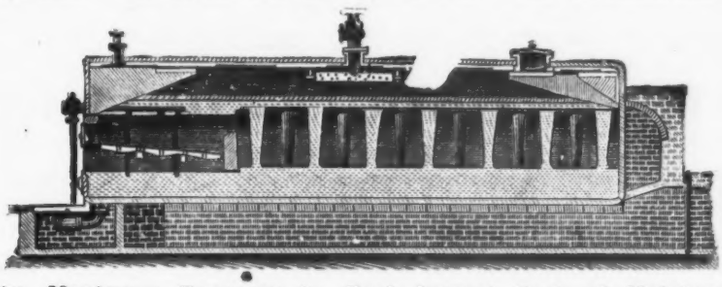


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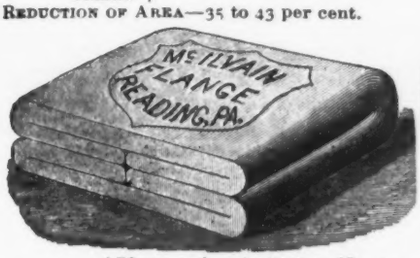
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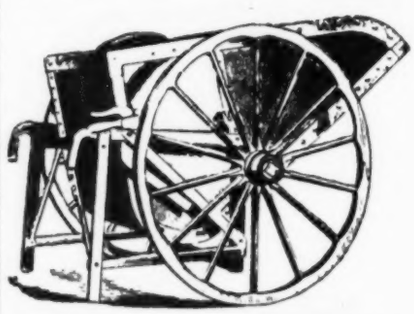
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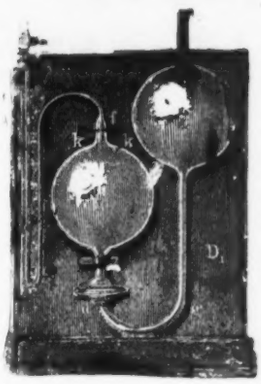
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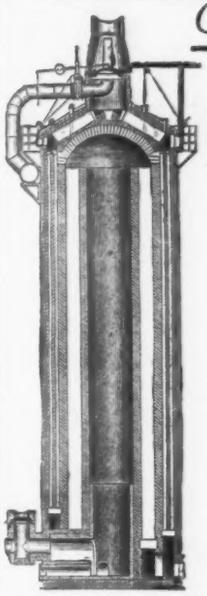
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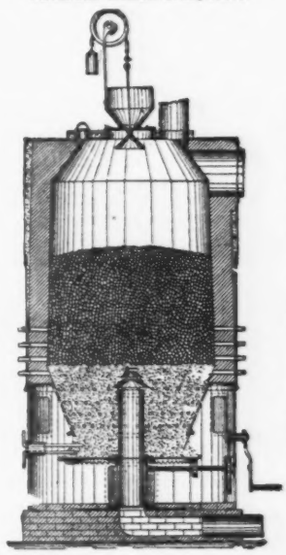


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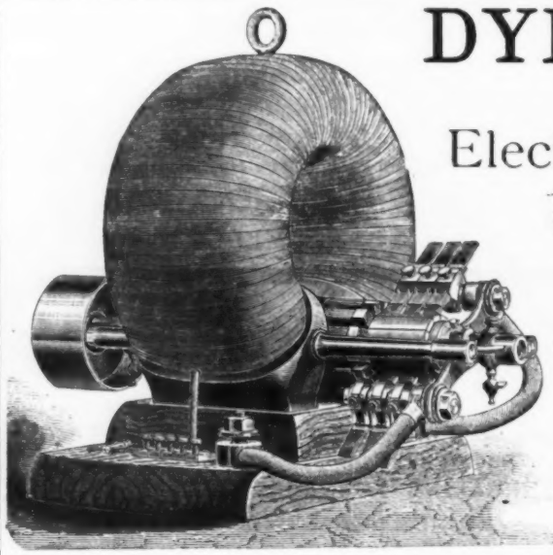
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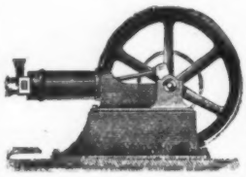
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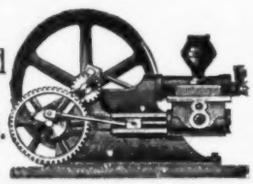


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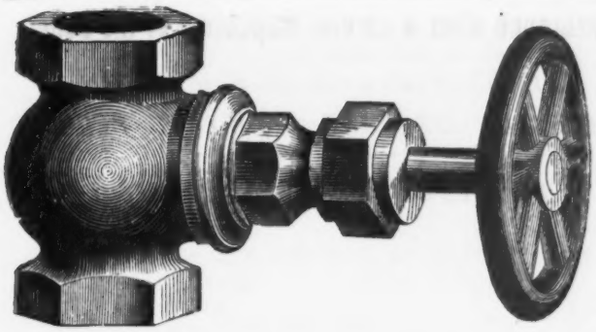
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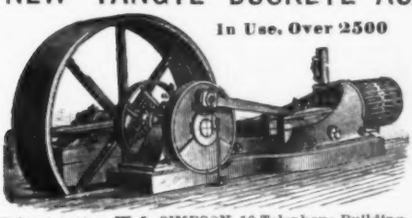


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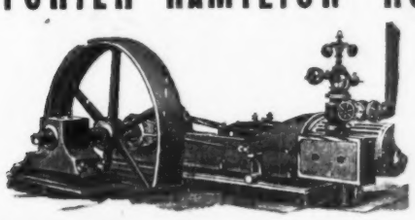


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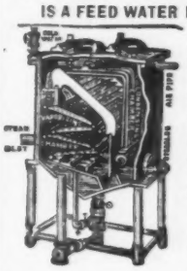
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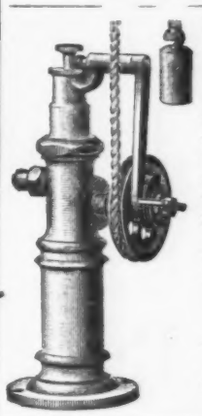
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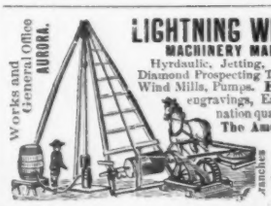
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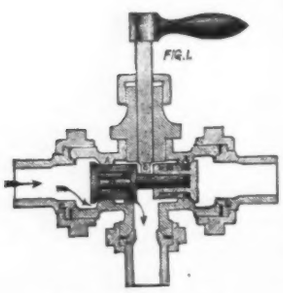
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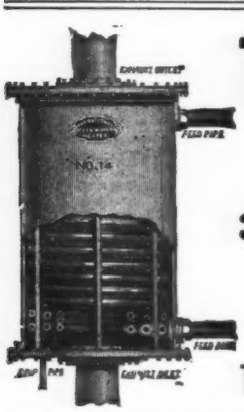
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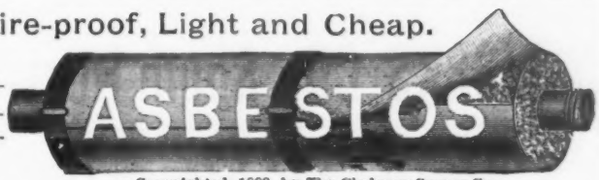
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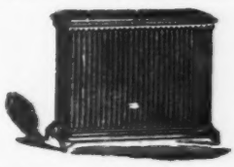
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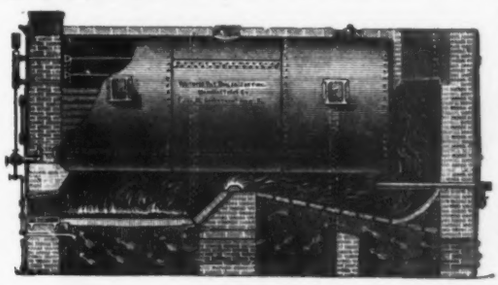


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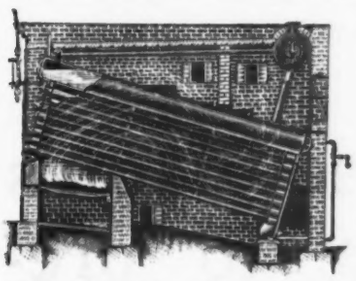
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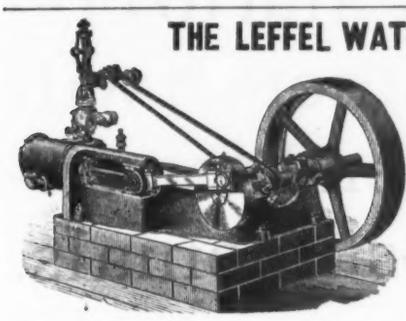
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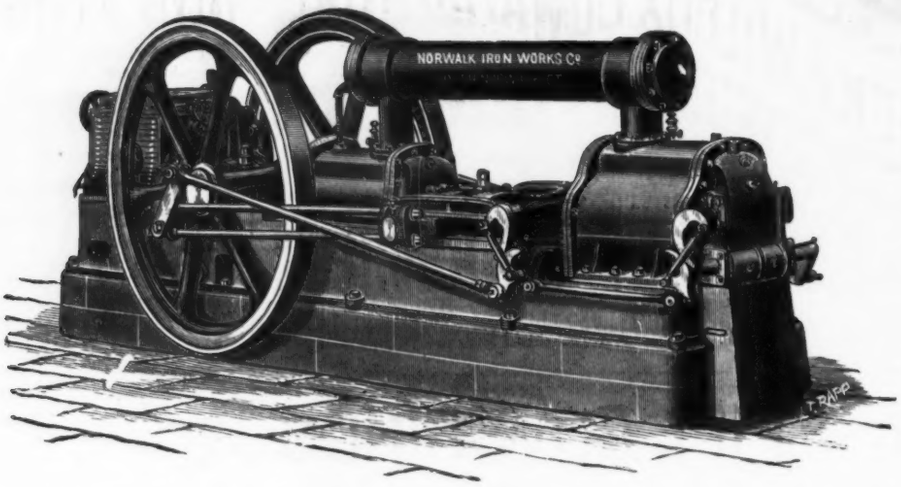
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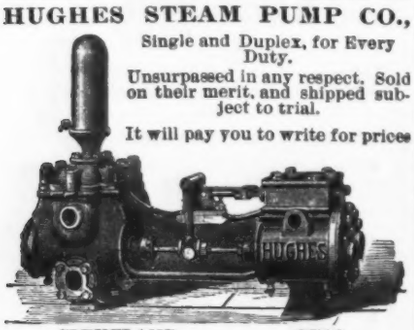
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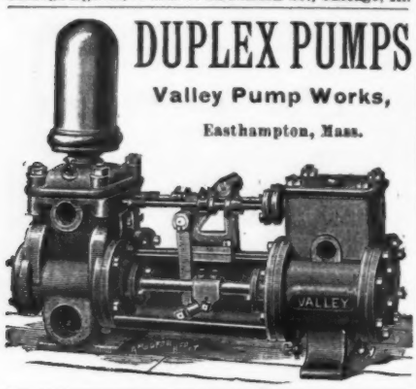
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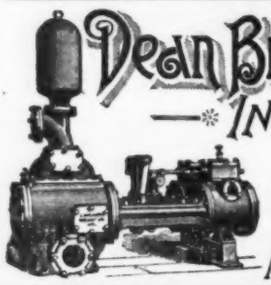
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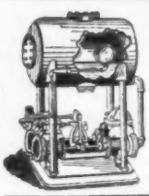
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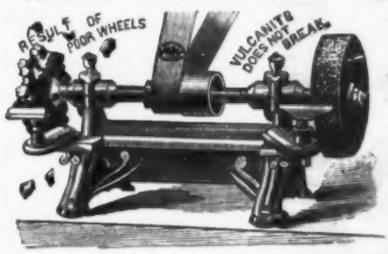
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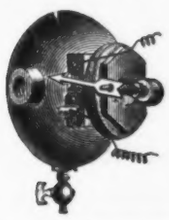
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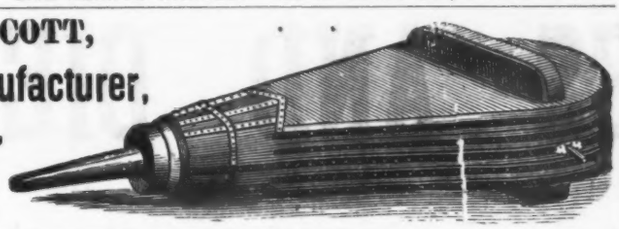
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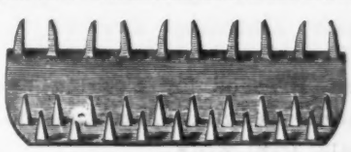
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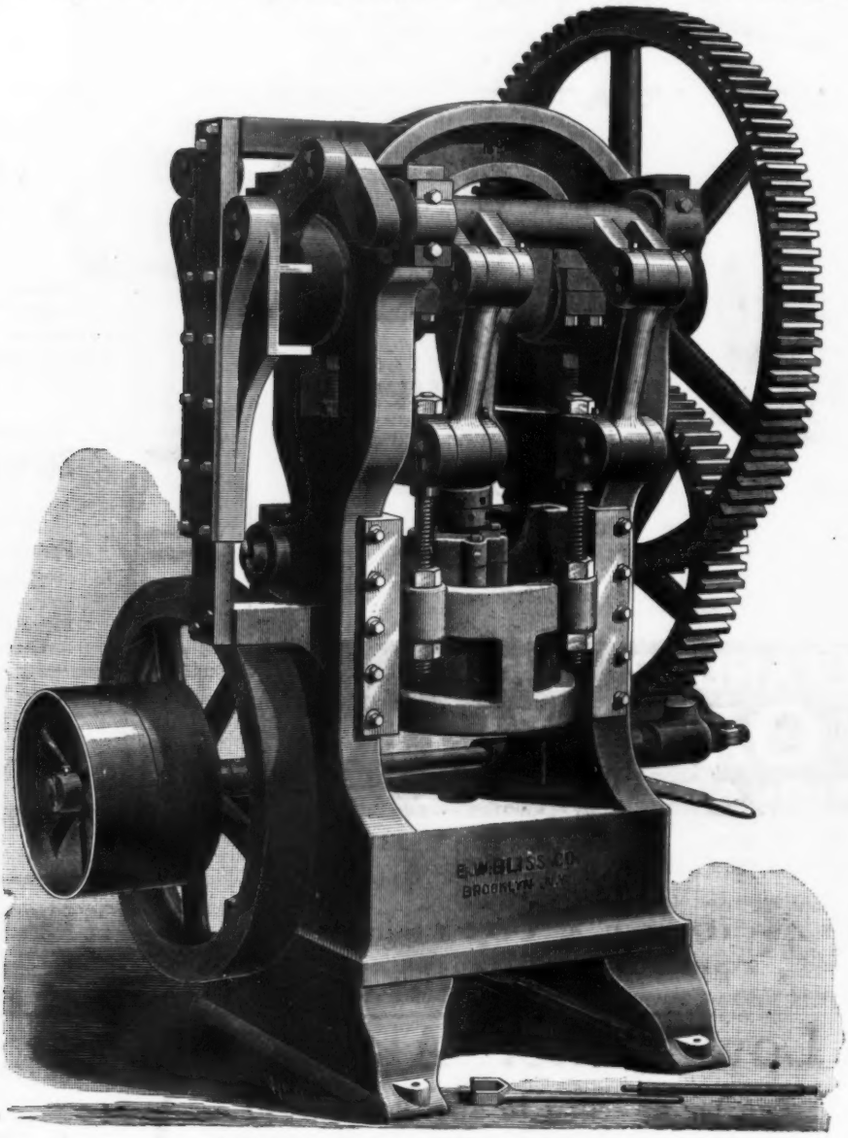
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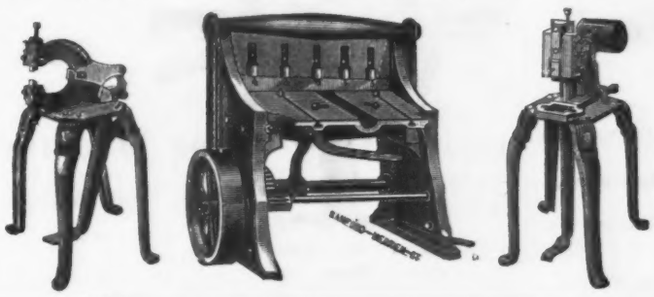
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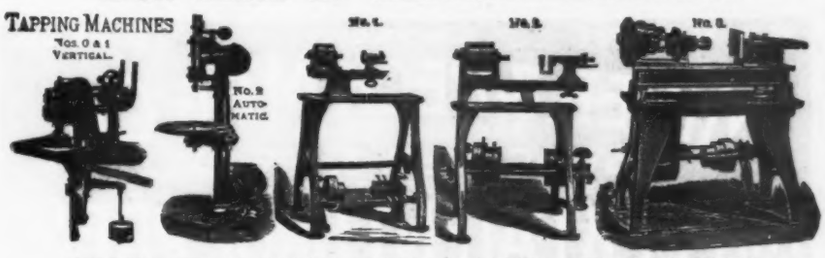


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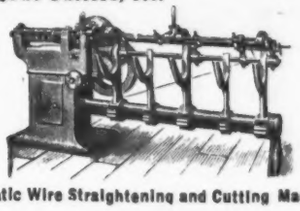


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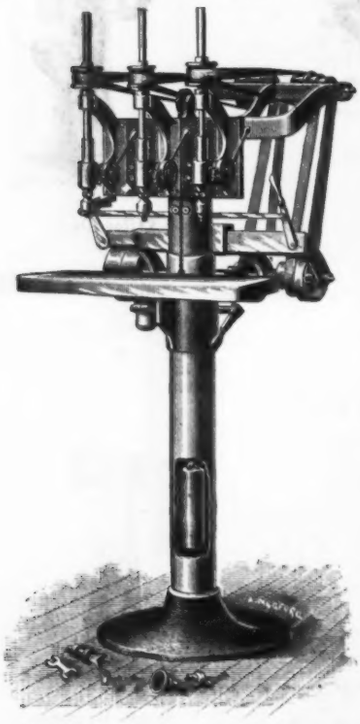
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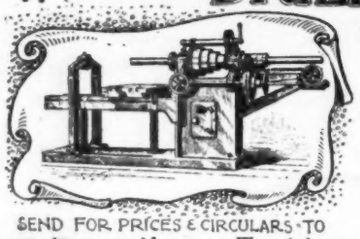
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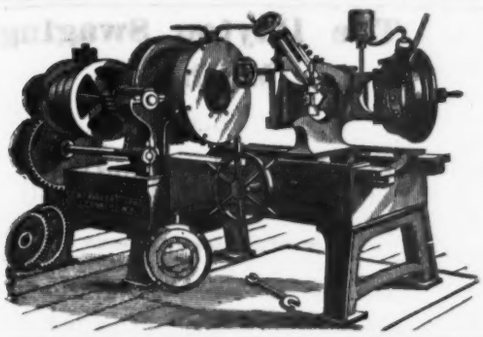


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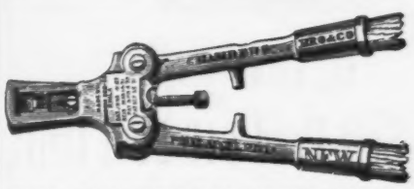
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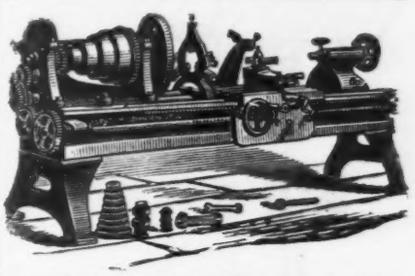
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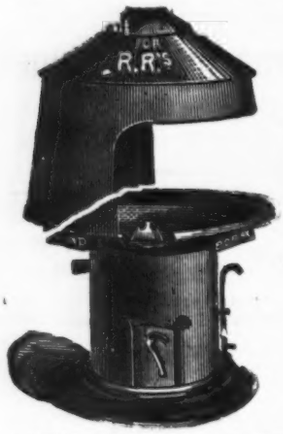
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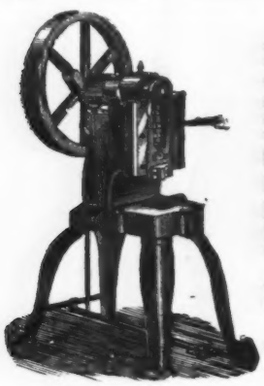
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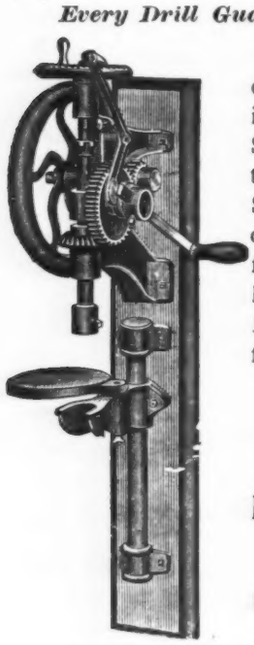
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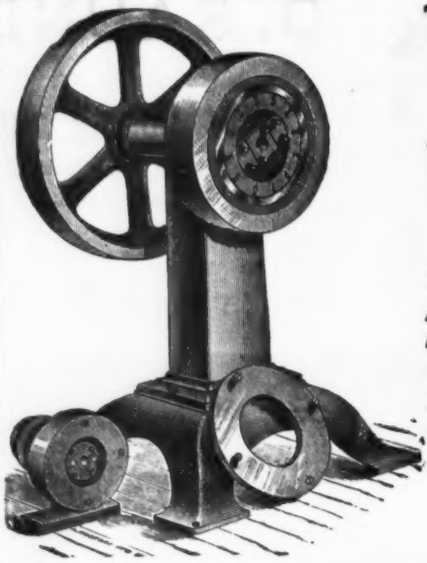


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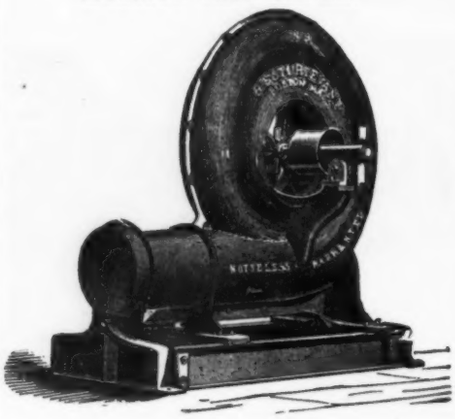


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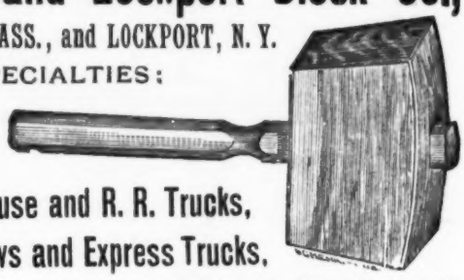
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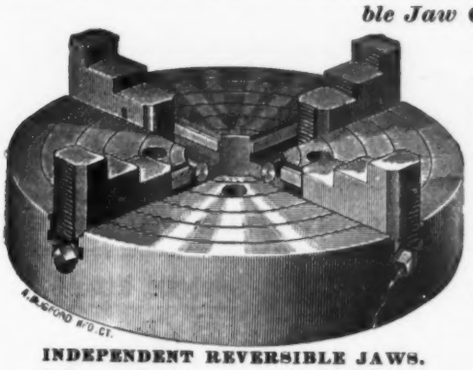


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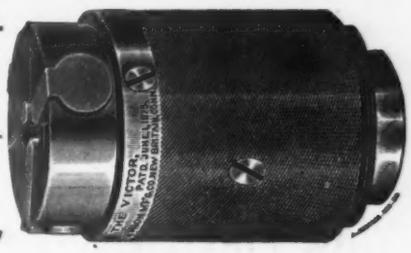
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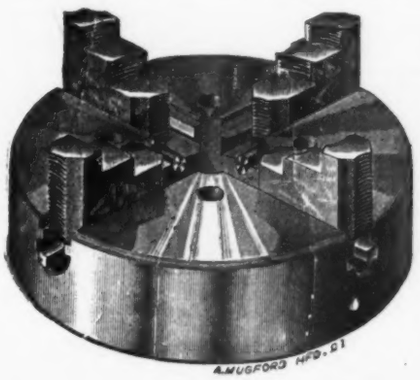
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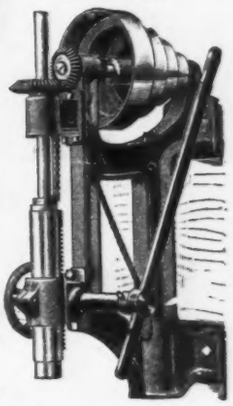
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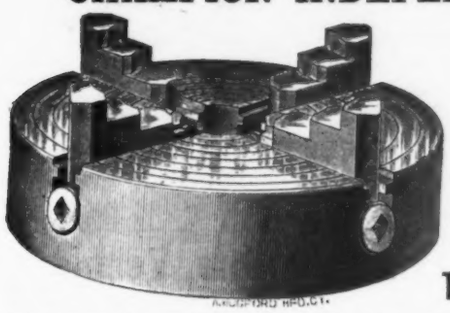


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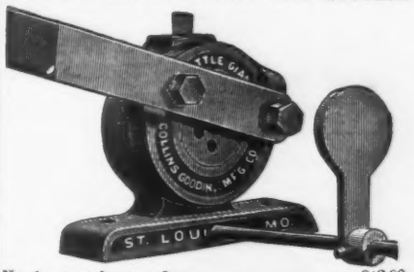


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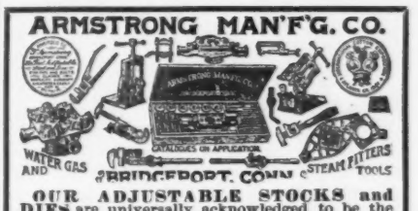




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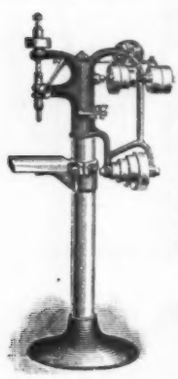
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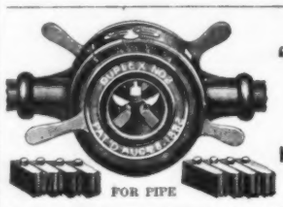


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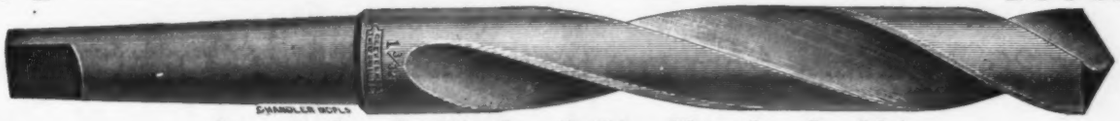
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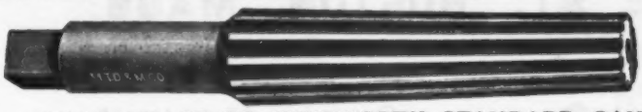
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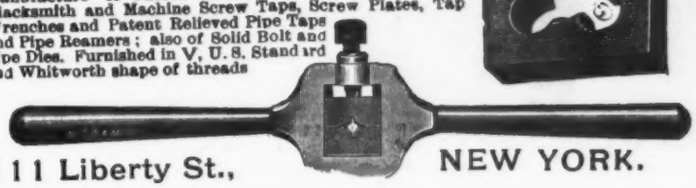
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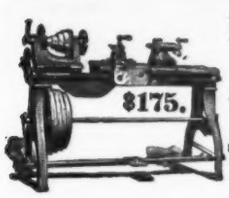
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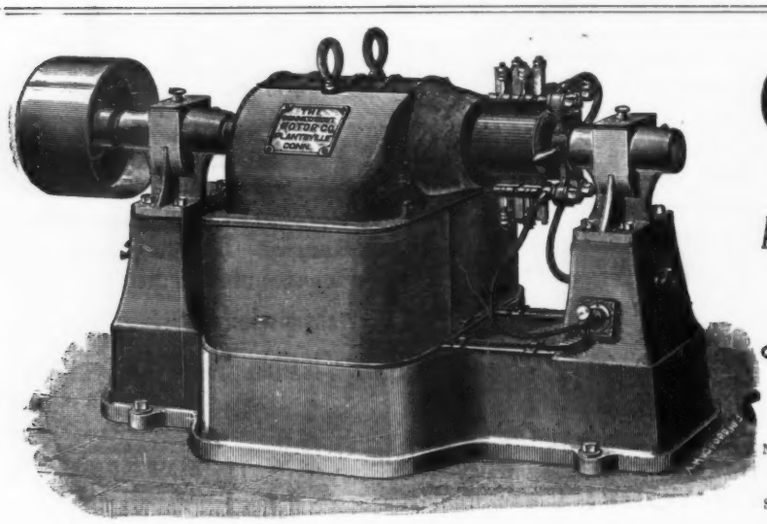
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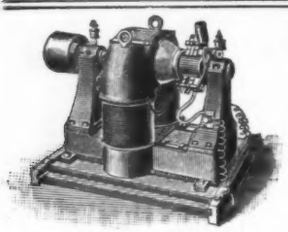
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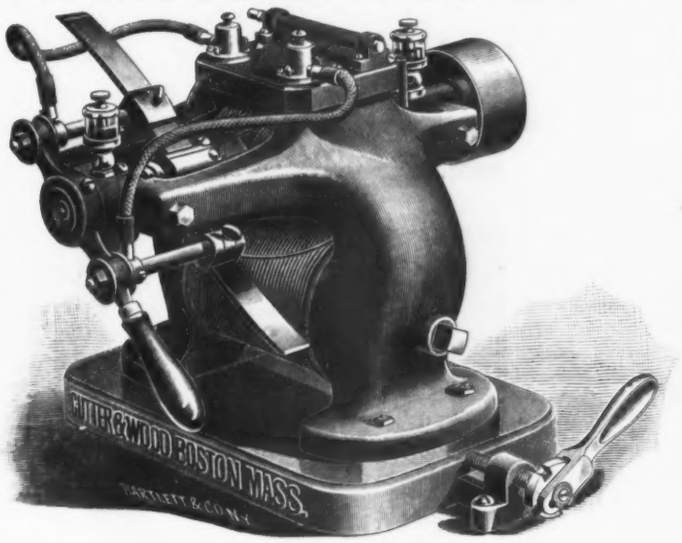
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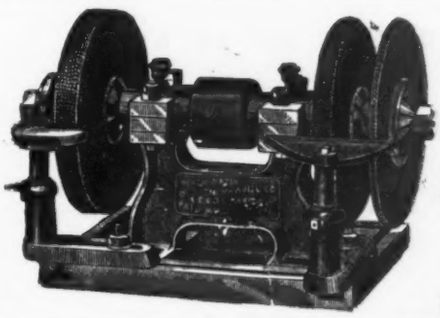
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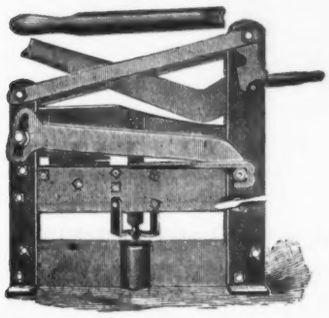
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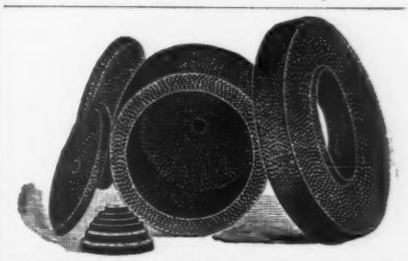
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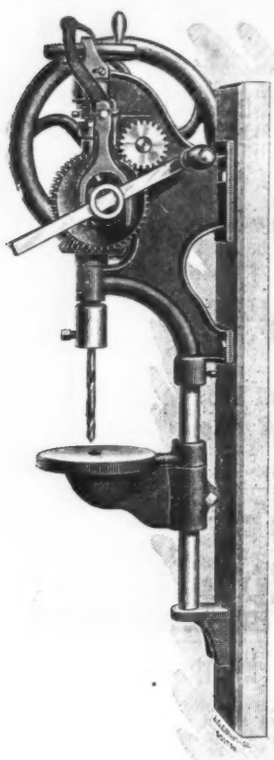
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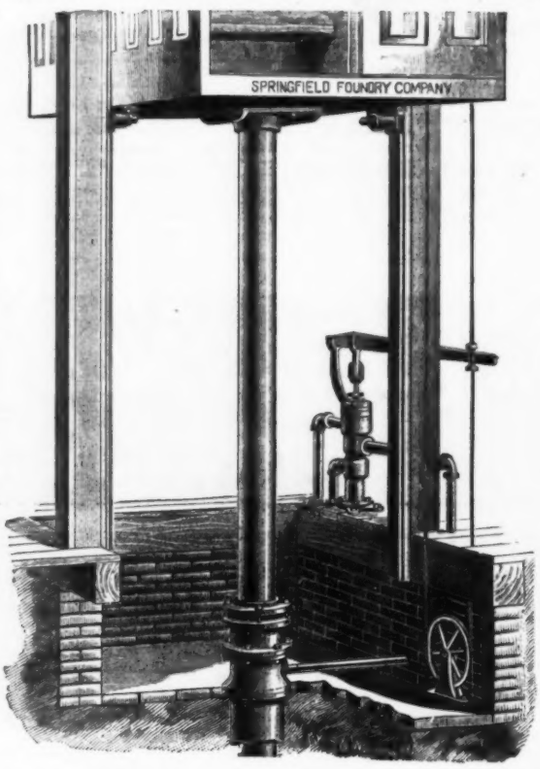
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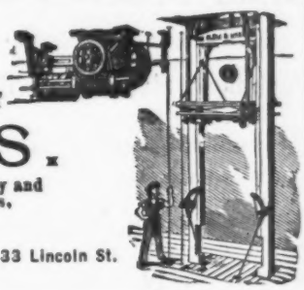
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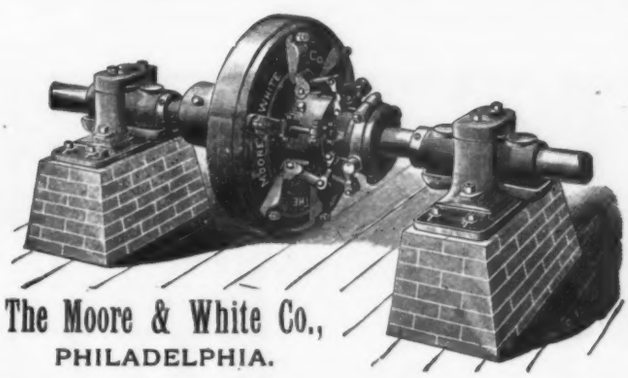
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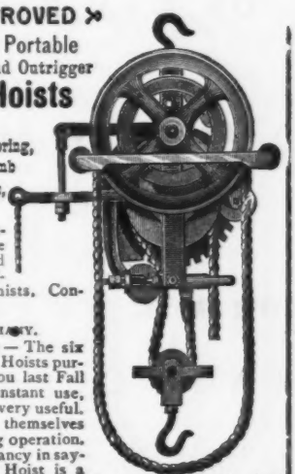
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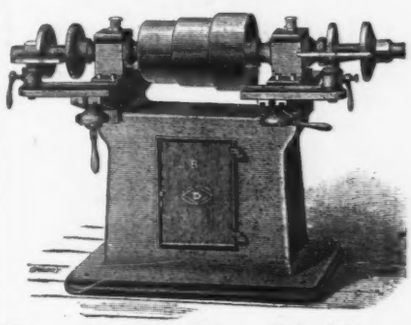
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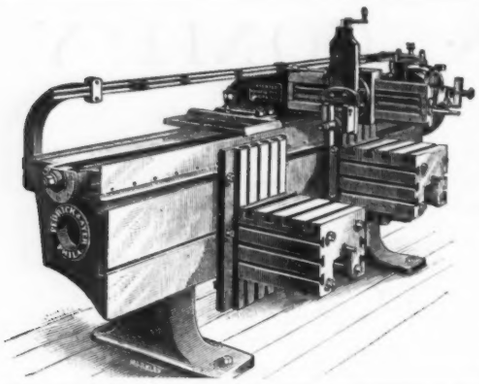
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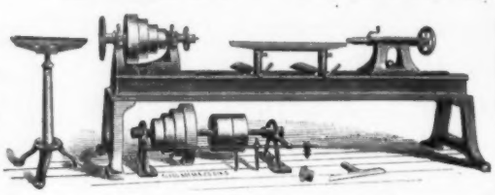
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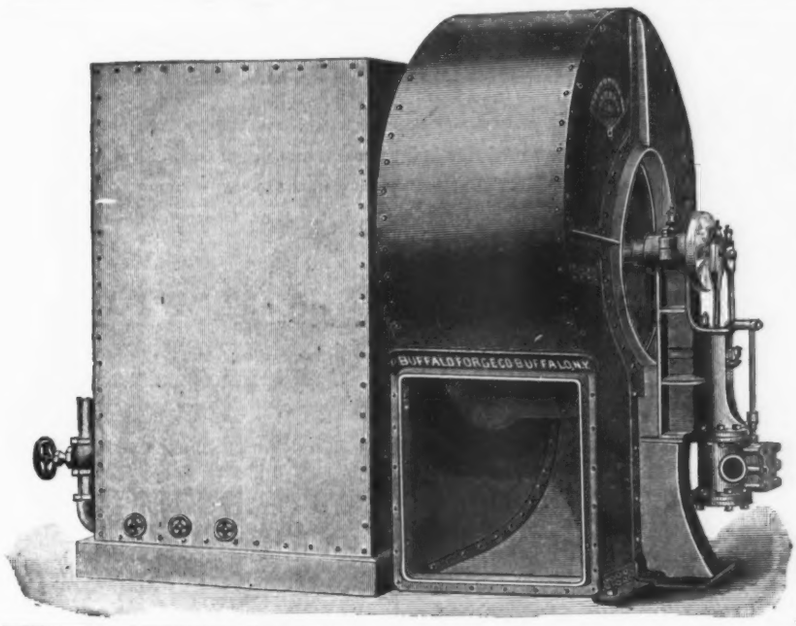


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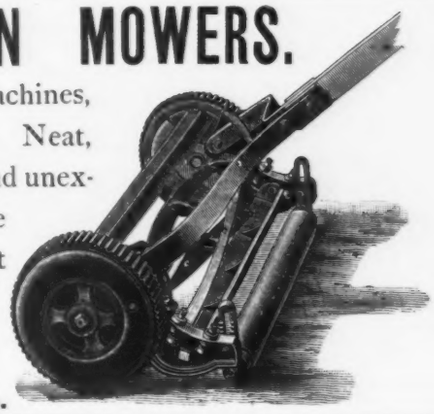
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One small tapping machine, cheap.
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Two 750 pound Steam Hammers. Good order. Bement & Dougherty make.
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1 No. 1 Garvin Universal Milling Machine.
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Complete outfit for making cast iron wagon skeins.
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Two lengths, 24 ft. 5 in. long, by 30 in. diameter; made of ¼ in. steel sheets; very strong.

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Splendid Steel Boilers,

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Lathes 13 x 5, 16 x 8, 20 x 7, 25 x 10.
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Fully equipped and running time and half time. Mill has 1 10 in. guide train, 1 heating furnace, with all the power necessary. Capacity of mill 10 tons per day. 1 30 H.-P. engine to run bolt and rivet machines &c., 3 latest improved rivet machines, 2 bolt furnaces, 1 large shears, with engine attached, 1 small shears Building is frame, 112 x 60 with slate roof and large ventilator. Unlimited supply of clear spring water flowing into mill through 12 in. main. Mill is located on Penn. R. R., and only several hundred yards from Philadelphia and Reading Railroad. Only responsible parties will be noticed. Special reasons for selling. Address all communications to

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WHEELS—A number of sets contractors' and mining wheels, equal to new.

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SPECIALTIES wanted for a plant in Pottstown to make on royalty or any way mutually satisfactory. Have the plant, experience and backing.

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FACTORY or Mill address wanted which can be leased or bought by a firm changing location, now in Pennsylvania.

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In all cases will give name and address of party above referred to. Send descriptions of what you have for sale or want and will give same prompt attention.

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Assorted Brass Patterns for use in manufacturing light hardware; also four (4) Japan Ovens complete with shelves. Write for particulars.

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Come and use the vast resources of West Virginia. Locate works at Charlestown. Free locations with best of Railroad facilities will be donated, and Cash Capital contributed.

Charlestown is at the junction of the Shenandoah Valley, now owned and operated by the Norfolk and Western, and the Baltimore and Ohio Railroads. The former penetrates the Iron fields of the South and Southwest, reaching the sea at Norfolk, Va., and connecting with the Pennsylvania R. R. North. It is 85 miles from the port of Baltimore by the B. & O. At Charlestown the cheap iron, coal and coke from Virginia and the South meet the iron, anthracite coal and coke from Pennsylvania, besides having vast deposits of superior brown and red Hematite ores on the spot.

The South is going to the front in iron manufacture. Northern manufacturers with their experience and methods, who have the shrewdness to see the opportunity and the courage to make a new departure will, do well to come South. Structural and architectural and railroad supply works, cast and wrought pipe works, stove foundries, car shops, in fact all kinds of iron industries great and small will have great facilities and unusual inducements offered them to locate at Charlestown, West Va.

For full information, address as above.

CHARLESTOWN MINING & IMPROVEMENT COMPANY.

An interest in a

Large Iron Property

IN

VIRGINIA FOR SALE.

Brown and Red Hematite and Red Shale Iron Ores in great abundance. Transportation facilities good.

The ores make a superior quality of iron and are in demand. Immediate development desired.

For further particulars address

HOWARD & SEARS,

Eagle Rock, Virginia.

WANTED.—Live agent traveling to sell State rights or exclusive right to make and sell my patented improvement in lanterns, on commission. Address

J. E. PERRY, Box 184,
Wakefield, R. I.

—30 Pound Rail—

Want cash bids on 135 gross tons, new or good second-hand steel rail, with switches and joints. Address "EUREKA,"

Backbone, Va.

PROPOSALS

—FOR—

Vertical Pumps.

Sealed proposals will be received at the office of the Board of City Affairs until 12 o'clock noon of December 26, 1890.

For four vertical pumps of five million capacity each in twenty-four hours; these pumps to take the place of similar size Wetherill pumps now in position and to operate by the steam ends now in use. Each bidder is requested to examine and measure the well and so design his work as to properly connect with the parts to be retained.

Each bidder will be allowed to furnish his own plans, drawing and specifications, with guarantee as to date of completion and forfeiture for failure in time; also, will be required to give proposition on plans and specifications furnished by the Board of City Affairs.

For particulars apply to Willis P. Tharp, Superintendent and Engineer of Cincinnati Water Works.

The Board of City Affairs reserves the right to reject any or all bids.

By order of the Board of City Affairs.

THOMAS G. SMITH, President.
Attest: D. W. BROWN, Clerk B. C. A.

CAN WE SERVE YOU?

If you have a stock of Hardware to SELL in any city or town in the U. S.

If you want to BUY a stock of Hardware in any city, town or village in the country.

If you want a traveling salesman for Hardware.

If you want a position as traveling salesman for Hardware.

If you want a tinner.

If you are a tinner and want a position.

Write the MERCANTILE EXCHANGE,
Macon City, Missouri.

All correspondence confidential.

FOR SALE.

Half interest in first-class Hardware Business, located in Western New York, doing a good, prosperous business; nice, clean stock; will inventory January 1st about $10,000; store large and very convenient; will sell or rent store; reason for selling, wish to engage in other business; this is a rare chance. Address "HALF INTEREST," office of *The Iron Age*, 66 and 68 Duane St., New York.

FOR SALE AT ST. PAUL.

The well-known Hardware Business of B. F. Knauft & Co., doing a General and Builders' Hardware, Furnace, Stove, Tin and House-furnishing Hardware business; established in present location in 1872; has the confidence of the people and enjoys a large trade. We own the building we occupy and can give favorable lease; good reason for selling. Splendid opportunity for parties with push and ability. Address

B. F. KNAUFT,
338 and 342 E. 7th St., St. Paul, Minn.

FOR SALE.

A clean, neat stock of Hardware, Stoves, Crockery and House Furnishing goods. Large Tin Shop and Hot Air Furnace Department attached. Stock by January 1st, 1891, can be sold down to less than $10,000. In a live western city of 22,000 inhabitants. Owner has run the business over 30 years and wishes to retire. Address "ILLINOIS,"

office of *The Iron Age*, 66 and 68 Duane St., N.Y.

FOR SALE.

One-half interest (to commence February 1, 1891,) in an old-established and flourishing business, trading in Hardware, Stoves, Furnaces, &c., and doing an extensive Plumbing and Jobbing business; located in one of New York City's most flourishing suburban towns, and commanding the bulk of trade in this fast growing section. Store and equipment said to be the finest in the East. Annual business over $100,000 and steadily increasing; stock about $25,000. Will sell only to one who will take an active part in management and furnish satisfactory credentials. Address

GEORGE D. FURGUSON & CO., Mt. Vernon, N. Y.

TO HARDWARE MANUFACTURERS.

A gentleman who is interested in the manufacture of a limited number of goods wants another line of hardware or specialties to represent on the road in connection with his own. He travels continuously, covering the whole of U. S., and is favorably and personally acquainted with all the large jobbers and larger retailers; previous to going into the manufacturing business, was connected with a large jobbing house, and has a thorough knowledge of all branches of the hardware business. Address "L. 90," office of *The Iron Age*, 66 & 68 Duane St., New York.

FOR SALE.—One large Pulverizing Machine, capacity 75 to 100 tons in 10 hours, for pulverizing fire clay, brick, stone, cement, glass and sand. For blue prints and prices, address

VULCAN IRON CO., LTD.,
New Castle, Lawrence Co., Pa.

ONE OR TWO GENTLEMEN

TO PURCHASE

President's $70,000 interest Incorporated Manufacturing Company. Seller will loan company $100,000 to increase business if desired.

"A. L. B.,"
Carrier 22, Buffalo, N. Y.

A RARE OPPORTUNITY.

We offer for Sale a stock of Hardware in the best town in the anthracite coal fields; a good trade established in General Hardware, Plumbing, Tinning, Painting and Papering. Stock $6000; can be reduced to $3000. Satisfactory reasons given for selling. Address

"PENNA,"
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

FOR SALE.

A new specialty manufacturing business; last year's business $6,000; this year's business $25,000, and a prospect of nearly double next year; good reasons for selling; price $13,500; goods can be manufactured anywhere. Address

"SPECIALTY" Box 818,
office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TO MANUFACTURERS.

Long experience makes it quite possible for me to find "out-of-the-way" markets for any line that manufacturers prefer to sell at reduced prices rather than create friction with their regular customers, viz.: seconds, off sizes, overstocks, old styles, etc. Send memorandum with quantities and lowest cash figures.

W. M. CALDWELL, agent for the sale of special lots, 75 Chambers St., New York.

WANTED.—An experienced business manager who can control $50,000, by a Chicago manufacturing corporation, whose present output capacity is contracted for up to January 1st, 1891, and which needs both a competent financier and additional capital. Address FRANK R. GROVER,
115 Dearborn St., Chicago.

Ingersoll Air Compressor, 24 x 30

Good as new, at a bargain,

Geo. M. Clapp, Agt., 74 Cortlandt St., N. Y.

WANTED.

Competent and Reliable parties to Manufacture and Sell **Cook's Rotary Ash Sifter** on royalty, in the Eastern, Western, Northern and Southern States.

Send for circular.

BURTON H. COOK,
321 Grand Ave., Brooklyn, N. Y

COLLECTIONS.

THE HARDWARE BOARD OF TRADE (LIMITED), corporated in 1877, Nos. 4 and 6 Warren street, New York, make **COLLECTIONS** in all parts of the United States and Foreign Countries of past due accounts, notes, checks and all other evidences of indebtedness. Your business is solicited.

JAS. H. GOLDEY, Treasurer.

M. GENERELLY,

17 Decatur Street, - New Orleans, La:

Manufacturers' Agent, Foreign and Domestic Specialties, solicits the representation of Hardware Manufacturers in New Orleans and the Gulf States; also consignments of specialties; warehouse and office centrally located.

STATE OF WASHINGTON.

For sale, a half interest in a General Mill and Engineers' Supply Store in the future metropolis of the Pacific Coast. Present owners have other business to attend to and want a managing Partner. Only those who thoroughly understand business methods in general, and this in particular, need address, with references,

"PARTNER,"
care of The Eaton, Cole & Burnham Co.,
82 & 84 Fulton St., New York.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an Agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
Commerce Street, Philadelphia, Pa.

RARE OPPORTUNITY FOR MANUFACTURERS.

FOR SALE AT A SACRIFICE

A FLOUR MILL.

(Complete roller process), a Foundry Facing Mill, having five run of stone; three Turbine wheels of 40 H.-P., each, with unlimited power from Lehigh River in reserve; ample room to erect large buildings for shoe, textile or other manufacturing enterprise, which can be driven by same water power. In the heart of the great Lehigh Valley iron region; direct railroad and canal communication to New York and Philadelphia; also on railroad connecting directly with Boston and New England R. R.; location of mills outside of borough limits, therefore not subject to town taxation; must be sold to close out an estate. For full particulars address

JOSEPH LYNN,
Freemansburg, Northampton Co., Pa.

PROPOSALS FOR HORIZONTAL PUMPING ENGINES.

CINCINNATI, O., DECEMBER 10, 1890.

Sealed Proposals will be received at the office of the Board of City Affairs until 12 o'clock noon of WEDNESDAY, January 14, A.D. 1891, for one and two **HORIZONTAL PUMPING ENGINES**, as follows:

For one compound condensing engine having a capacity of six million gallons in twenty-four hours, with a steam pressure of 110 pounds and a water pressure of 145 pounds. This engine to be delivered as a perfect low duty, but so arranged as hereafter to be made by additions to show a duty of one hundred million foot-pounds

Bidders will state in their proposals the cost of this engine, delivered and erected in Cincinnati, O., as also the additional cost of the proposed additions for full duty, if ordered within twelve months of the date of this contract.

Proposals will also name the cost of one additional engine of same size and full high duty, with the right to order same within one year from date of contracting for the first engine.

Bidders will furnish full drawings and specifications with their proposals and also state their guarantee as to time of delivery and duty to be shown by test.

Information will be furnished by Willis P. Tharp, Superintendent and Engineer Cincinnati Water-Works.

A certified check in favor of the Board of City Affairs to the amount of $3000 will be required in lieu of bidder's bond, to be forfeited for non-acceptance of award; otherwise to be returned.

The Board of City Affairs reserves the right to reject any and all bids.

By order of the Board.

THOMAS G SMITH,
President Board of City Affairs.

Attest:
D. W. BROWN, Clerk.

"20 Flat Cars."

20 Standard Gauge Flat Cars, 20 ton capacity, 35 feet in length, built after the Pennsylvania R. R. standard flat. These cars have been in use but a short while and are practically as good as new. We also have sides and ends for same and could be used for coal, gravel, &c. Price $260.00 each. J. S. BERKERY,
76 Moffat Block, Detroit, Mich.

For Sale.

Ingersoll Air Compressor, 14 inches, air receiver 32 inches in diameter, 12 feet 3 inches long, capacity for driving 6 mining machines. Also 3 mining machines 5 inches in diameter, 12 inch stroke. 475 feet 3 inch pipe, exhaust pipe engine, &c.

RANDOLPH COAL AND GAS COMPANY,
Kansas City, Mo.

To Shear Manufacturers.

A splendid opportunity for a practical shear man with some capital; never failing water power; good tools and machinery; nominal rent; no taxes; shop will be vacant about January 1st. Address "SHEAR MAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

VALUABLE MANUFACTURING PROPERTY

In South Keene, N. H.,

FOR SALE.

With a fine water privilege and about 90 acres of land. Brick factory, finishing shop, saw mill, storehouse, dry houses, five storage buildings and two sheds, six dwelling houses and stable, etc. For further particulars address WM. O. WILLIAMS, 131 Devonshire St., Boston, or HALE & CO., 304 Pearl St., New York.

FOR SALE.—Interest in a newly invented Steam Engine, giving the most direct application of steam known, and at a reduced cost to build. Also an Elevator Lock patent. Send for list of patents. BOX 2294, Boston, Mass.

Special Notice

Florida Steam Boiler For Sale.

A No. 66 double Florida Steam Boiler for sale. It has been set, but has had no appreciable wear; is in perfect order. Will be sold at a very low figure. Chance for a bargain to any dealer.

Address

BRAMHALL, DEANE & CO.,

264 & 266 Water St., N. Y., or
81 & 83 Market St., Chicago, Ill.

WANTED.

A second-hand Air Compressor for running at least twenty drills, the Norwalk make preferred. Address, stating particulars and price,
"AIR COMPRESSOR,"
office of *The Iron Age*, 66-68 Duane St., New York.

MAKERS OF TOOLS and MACHINERY

are invited to send illustrated price-lists with highest discount to **DELISLE & ZIEGELE**, Importers of Tools and Machinery, Stuttgart, Germany. Best references.

TO JOBBERS.

Do not buy your stock of

REFRIGERATORS

until you have seen the new Table Top and Automatic Refrigerator. Manufactured by the HOPPER LUMBER & MANUFACTURING CO. of Michigan City, Ind.

To Hardware Specialty Manufacturers.

Parties who are now manufacturing and selling a successful patented specialty desire to turn over the manufacture and sale of same to a manufacturing concern having similar lines of goods. Exclusive rights given to manufacture and sell. Liberal terms to the right party. Address

"HALL,"

office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.—A Machinist and Moulder or Pattern Maker with a few thousand dollars each to invest in our machine shop, now doing a good business. Established 1865. References given and required. First-class opening for the right men. For further particulars

Address JESSE ASTALL,
West Strand Iron Works, Galveston, Texas.

WANTED

To correspond with any dealer outside of the State of Connecticut who makes a specialty of Tools and Supplies, relative to the issuing of a catalogue of goods of this description, whereby combined interest may effect a saving of about 50 per cent. Address

STORRS & CANDEE,
Hartford, Conn.

THE MANUFACTURERS of a Hardware Specialty in Chicago would like the exclusive Western control of one or two additional lines. Will carry stock and work territory thoroughly. Address
SARGENT, GREENLEAF & BROOKS,
Chicago, Ill.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.

WOLCOTT & WEST, SYRACUSE, N. Y.

HARRISON CONVEYOR

FOR HANDLING

Grain, Coal, Tan Bark, Seeds, Etc.

Will convey all kinds of grain without mixing.
Will carry two different kinds of material in opposite directions at the same time.
Will convey One-Hundred and Fifty Tons of Coal per hour. Made of Wrought Iron and Steel. Send for Illus. Catalog. **BORDEN & SELLECK CO., 48 and 50 Lake St., Chicago, Ill.**

Fluor-Spar.

MULLINS'

Fluor-Spar and Lead Mining Co.,

220 First National Bank Building

CHICAGO, ILL.

This Company owns, at Mineral City, on the Ohio River, the largest Mines of Fluor-Spar ever discovered.

We are working a large force of miners; our new mills and tram railway are running, and we are now prepared to furnish the purest Fluor-Spar in any quantities to Iron and Steel Manufacturers, to Smelters of Gold, Silver and Copper, and to Paint, Paper and Glass Makers.

Fluor-Spar is pronounced the most powerful of fluxes; it facilitates the reduction of the most refractory materials. For Alkalies, Clays, and all Metallic Oxides it has a remarkable solvent power; it reduces the melting point, and saves fuel; it diminishes the loss of metal, saves labor, and keeps the cupola clean; reacts strongly upon scaffolds and cloggings.

One part of Fluor-Spar is more effective than ten parts of Limestone. Limestone is an enemy to iron; Fluor-Spar is a friend.

Directions for the proper use of Fluor-Spar given our patrons.

We ship Lump, Gravel, Crushed and Ground, in bulk or barrel.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9½ in. each, $8.00.
POCKET SIZE, 250 Pages, 4 x 7 in., each, $4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND. OREGON.



Every Merchant Needs

THE

Economy Roll Paper Cutter.

Saves Wrapping Paper! Order one on trial. You wouldn't part with it! We guarantee satisfaction. Roll paper, all sizes to fit, carried by all paper dealers as cheap as flat papers. Send for circular and prices.

MANUFACTURED BY
REDHEAD, NORTON, LATHROP & CO.,
Stationers, Des Moines, Iowa.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

A SUPERINTENDENT for a Chain Factory; only those thoroughly competent to undertake the management of a factory need apply. Answer, stating salary and experience, "FACTORY," office of *The Iron Age*, 66 and 68 Duane St., New York.

TRAVELING SALESMEN who can add to their present lines, a line of Wagon Specialties, allowing them a liberal commission, will do well to correspond with THE RACINE BOLSTER SPRING CO., Racine, Wis.

THOROUGHLY EXPERIENCED AXLE salesman, by a manufacturer. Address, stating experience, age, references and terms, "AXLE SALESMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

TWO GOOD WET WIRE DRAWERS; steady work for competent men. Address G. P. CLAPP, Cali. Wire Works, San Francisco, Cal.

A CHEMIST; a man conversant with Laboratory work at Blast Furnace or Steel Works preferred. Address, stating age, experience, references and salary expected, P. O. DRAWER A., Pottstown, Pa.

A FIRST-CLASS Moulder to take charge of small shop doing nothing but bench work; pleasant location and good pay to right man; give age and where have been working; all replies considered confidential. Address "BENCH MOULDER," office of *The Iron Age*, 66 and 68 Duane St., New York.

SUPERINTENDENT WANTED.—A man capable of taking charge of a foundry and machine shop, building hydraulic and rolling mill machinery; state where last employed, also age and salary expected. Address "SUPERINTENDENT," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh.

TRAVELING SALESMAN wanted in every State, to sell the Smolley "T" Steel Fence Post as a side line, on commission; name territory covered; samples furnished and commission promptly paid. Address JOHN G. SMOLLEY, Connersville, Ind.

SALESMAN WANTED.—One thoroughly conversant with the Babbitt Metal and Solder trade. Give full particulars, references and salary expected. Or would prefer a Salesman an commission. Address "SALESMAN," Box 208, Equitable Building, New York.

TRAVELING SALESMAN wanted; one thoroughly conversant with sheet, brass and copper. Address giving full particulars and references "A. B." office of *The Iron Age*, 66 and 68 Duane St., New York.

COMPETENT MAN, as manager of works comprising open hearth plant, rolling mill and its various products; will be required to take full charge and responsibility and superintend all details; state experience, references and salary required. Address "WORKS MANAGER," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

TRAVELING SALESMAN; an experienced and thoroughly steady, energetic man who can put in effective work with the manufacturers of agricultural implements and metal workers throughout the West. Address "X CARRIER No. 26," Worcester, Mass.

A MAN competent to take position of superintendent in foundry making crucible and open-hearth steel castings; must have best references as to ability to make good, sound castings and must be able to take entire charge of this department of the works. Answer, giving full particulars and stating salary expected, "STEEL CASTINGS," office of *The Iron Age*, 66 and 68 Duane St., New York.

TWO EXPERIENCED Mechanical Draughtsmen. Apply to
THOMSON ELECTRIC WELDING CO.,
Lynn, Mass.

BY A MANUFACTURER of Plumbers' Brass Goods, a traveling salesman with an established wholesale trade, and who can show sales for last year of $150,000 to 200,000; none other need apply; a good chance for the right man. Address "Y. E. H.," office of *The Iron Age*, 66 and 8 Duane street, New York.

COMPETENT SALESMAN to sell Malleable Iron and Steel Castings Give age, experience and salary wanted. Box 1191, Philadelphia Post Office, Pa.

TRAVELING SALESMEN wanted in New York, Pennsylvania, Eastern and Southern States to sell our Excelsior Family Oil Can as a side line. Address BATES & HOYT MANUFACTURING CO., Cuba, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

THE ADDRESS OF A MANUFACTURER of Iron, Felt or other Roofing Materials who would like to be represented in the South and West, on commission, by two roofing salesmen; extensive acquaintance with roofers and tinners; A 1 reference as to ability, experience and honesty. Address "M. & G." office of *The Iron Age*, Cor. Fourth and Main Sts., Cincinnati.

AS SUPERINTENDENT or General Foreman; have had 25 years' practical experience in rolling mill business and understand the manufacture of iron in all its branches, as well as the building of furnaces; strictly temperate. Address "GENERAL FOREMAN," office of *The Iron Age*, 66 and 68 Duane St., New York.

A THOROUGHLY reliable man would like to represent some good Eastern manufacturing firm in Chicago and surrounding country; eight years' experience selling machinery, supplies, sheet brass, &c., polishing and plating supplies; would like to correspond with any one wanting their goods pushed. Address "F.," Room 4, 120 Randolph St., Chicago, Ill.

A GENTLEMAN with ten years' experience in iron and steel manufacturing, both East and West, will locate in Philadelphia February 1st, as "Manufacturers Agent" in iron, steel, metals and metal specialties; solicits correspondence from manufacturers desiring representation in that section either on salary or commission. "T.," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh.

A YOUNG MAN with three years' experience in large wholesale and manufacturing house is open for engagement January 1st,; good salesman; best references as to ability and character. Address 'SEYMOUR," office of *The Iron Age*, 66 and 68 Duane St., New York.

AS SUPERINTENDENT or Foreman, by a first-class mechanic; is energetic and a good manager; has recently resigned a position of superintendent; has had large experience in engine, machine, tools and experimental work. With good outlook will place part of salary in business. By trade a tool and die maker, and strictly temperate. Address "MODERATE," office of *The Iron Age*, 66-68 Duane St., New York.

FOREMAN.—A man of six years' experience as foreman of iron foundry in lock and hardware factory desires situation as foreman of iron foundry; references from last employer. Address "SIXES," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY A MAN OF FAMILY, having ten years' experience in selling and correspondence in Steel and Iron in various forms, as Bars, Sheets, Billets, Blooms, Pig Iron, Locomotive Tires, Tool Steel, Rails, Spikes, etc. Address "BILLETS," office of *The Iron Age*, 66 and 68 Duane St., New York.

A FIRST-CLASS MECHANIC and Tool Maker is open for engagement as foreman or superintendent of machine shop; is experienced in handling men in manufacturing of machinery and tools; can furnish good recommendations as to ability; is steady and strictly sober. Address "F. A. L.," office of *The Iron Age*, 66 and 68 Duane St., New York.

AS BOOKKEEPER, timekeeper or clerk: have had eight years' experience in all branches of office work in an iron bridge and building construction company; conversant with German and Spanish; can give references and security. Address "SPANISH," office of *The Iron Age*, 66 and 68 Duane St., New York.

ROLL TURNER wants position in merchant bar, guide or shape mill; sober, steady and industrious; age 30. Can furnish best of references. Address "L. S. H.," office of *The Iron Age*, 66 and 68 Duane St., New York.

IRON AND STEEL Salesman with 6 years' experience open for position January 1st, to travel Pennsylvania, Delaware, New Jersey and New York, for plate or tool steel mills; formerly in business for self. Address "I. S." office of *The Iron Age*, 66 and 68 Duane St., New York.

THE ADVERTISER desires a position as executive man or Traveling Salesman with a manufacturer of any kind of heavy hardware; fifteen years' experience has given him a thorough acquaintance with all the large trade throughout the country. Address "ROANOKE," office of *The Iron Age*, 66-68 Duane St., New York.

YOUNG MAN with an extended experience and acquaintance with the jobbing hardware and sporting goods trade throughout the West is at present open for an engagement as salesman; refers to present employers; would prefer to represent some manufacturer of standard goods or hardware specialty. Address "K," office of *The Iron Age*, Shawmut Building, Boston, Mass.

YOUNG MAN with experience in manufacturing hardware specialties and with an extended acquaintance with Western jobbing trade is open for an engagement with manufacturer either on road or in factory; best of references. Address "F." office of *The Iron Age*, Shawmut Building, Boston, Mass.

A SETTLED MAN, age 28, familiar with general hardware, wishes a position in wholesale house; eleven years' experience, four years was head of stock and buyer for Southern firm; best of references. Address "N. C. W.," office of *The Iron Age*, 66 and 68 Duane St., N.Y.

A YOUNG MAN, 16 years' experience in General and Builders' Hardware, good Salesman, best of references as to business ability and moral character, would make connection with a good house in a live growing city, where a small amount of capital will obtain an interest in the business. Address "PROMOTION," office of *The Iron Age*, 66 and 68 Duane St., New York.

A YOUNG MAN of experience in the manufacture of all kinds of agricultural spring work is seeking an engagement; is competent to put in and operate plant for the manufacture of rake teeth, spring harrow teeth and other spring work, as his references will fully prove. Address "RAKE TEETH," office of *The Iron Age*, corner Fourth and Main Sts., Cincinnati.

BY A MAN of 37, a position as Superintendent of electric light factory or machine shop; have had six years' experience at same, and modern way of doing machine work; also perfectly capable of buying stock for the manufacture of electric light apparatus or machinery; also thoroughly understands new concise method of keeping factory accounts and books; in all a thorough business man; can give best references. Address "INQUIRER," office of *The Iron Age*, 66 and 68 Duane St., New York.

THE UNDERSIGNED has been in the employ of large manufacturing establishment nine years, three years as stenographer and for six years had entire charge of correspondence; speaks Spanish; traveled in Mexico and South America; very successful as salesman; wishes position in office, or as traveler; highest reference. Address "MEXICO" office of *The Iron Age*, 66 and 68 Duane St., New York.

A POSITION as Traveling Salesman to represent first-class manufacturers; have had long experience in Machinery, Tool and Supply business and also Builders' Hardware Best of references. Address "MANUFACTURER'S SALESMAN," office of *The Iron Age*, 220 Sout h Fourth Street, Philadelphia.

BY A YOUNG MAN from the country with a wholesale or large retail house; ten years' mercantile experience; unquestionable references for character and ability. Address "H.," Box 97, Marysville, Ohio.

A PRACTICAL rolling mill superintendent who has had fifteen years' experience in structural, bar and rail mills, thoroughly understanding the manufacturing of iron in all its branches, is at present open for an engagement. Address "J., 405," office of *The Iron Age*, 66 and 68 Duane St., New York.

A CHEMIST of experience and ability would like a position at a steel works or blast furnace as Chemist; has had experience at both and can furnish excellent references. Address "E. X.," office of *The Iron Age*, 66 and 88 Duane St., New York.

BLAST FURNACE SUPERINTENDENT and Engineer of successful experience is open to an engagement. Address "SILICON," office of *The Iron Age*, 66 and 68 Duane St., New York.

BY FIRST CLASS ROLLER, of 15 years' experience on trains from 8 to 20 inches; best of references for ability, sobriety and character. Address "STEEL AND IRON." office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

BY JANUARY 1st, a position by a practical machinist accustomed to handling large bodies of men on engine work and machine tools; has traveled very extensively for eight years in and out of the U. S., in the interest of a well known Engine Co.; is well up in high speed and compound engines for electric light and street railway work and can make estimates on the same, including installation; Pacific Coast preferred. Address "P. T. H.," office of the *The Iron Age*, 66 and 68 Duane St., N. Y.

A BRIGHT active Salesman is open for an engagement Jan. 1st, or would like to represent some manufacturer of novelties (merit preferred) in New York and vicinty. Experienced, city and road. Al references; nine years with present employers. Address "BRIGHT SALESMAN," office of *The Iron Age*, 66-68 Duane Street, New York.

THE AMERICAN BIT BRACE CO., Buffalo, N. Y., U. S. A.

MANUFACTURERS OF

Fine Bit Braces, in a large variety of styles and Sizes.



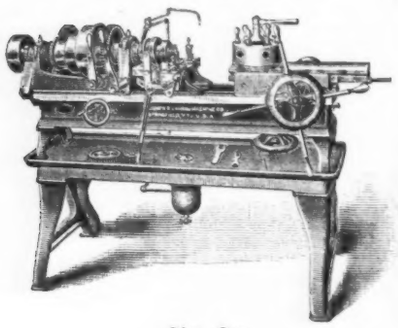
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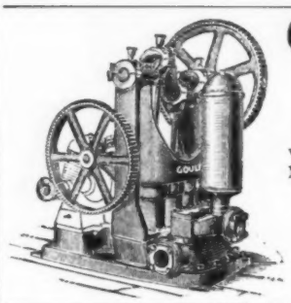
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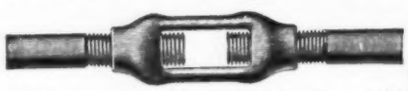
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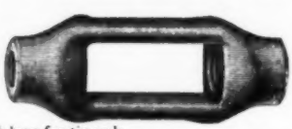
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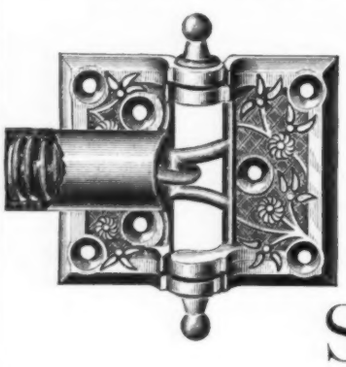


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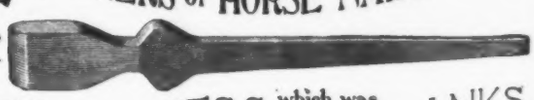
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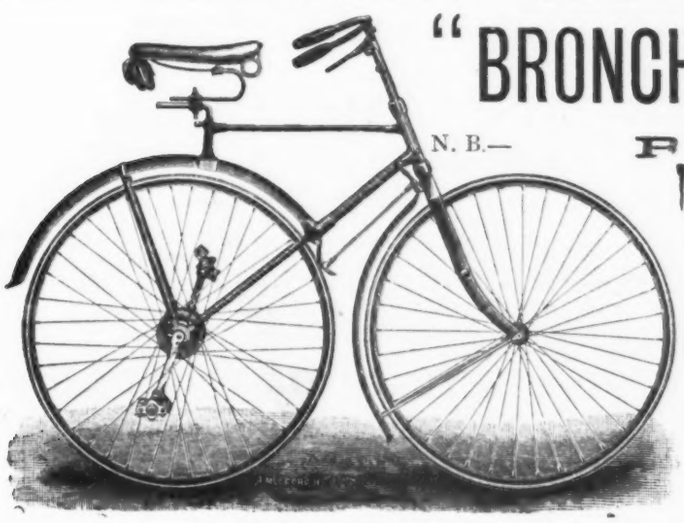
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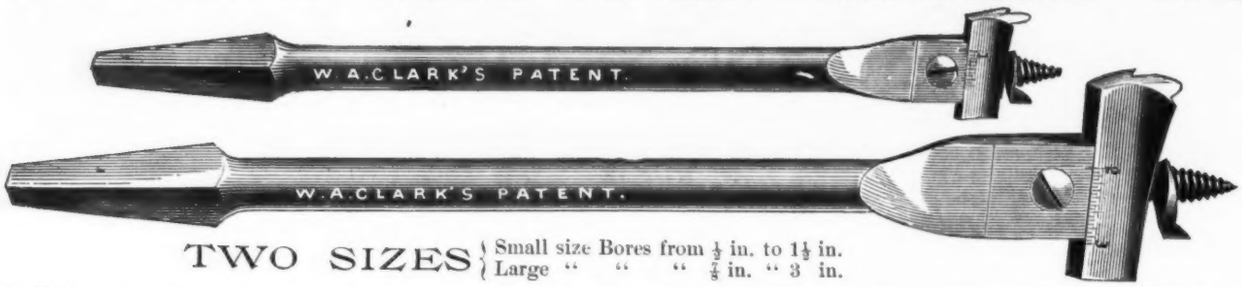
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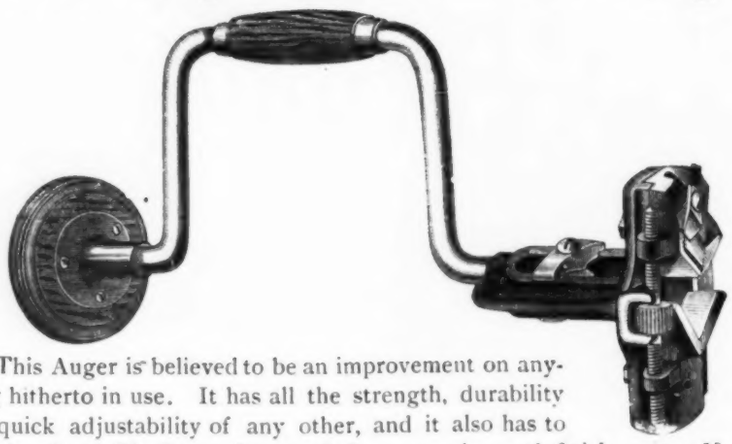
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U. S. PATENTS.
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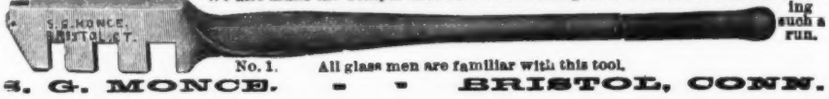
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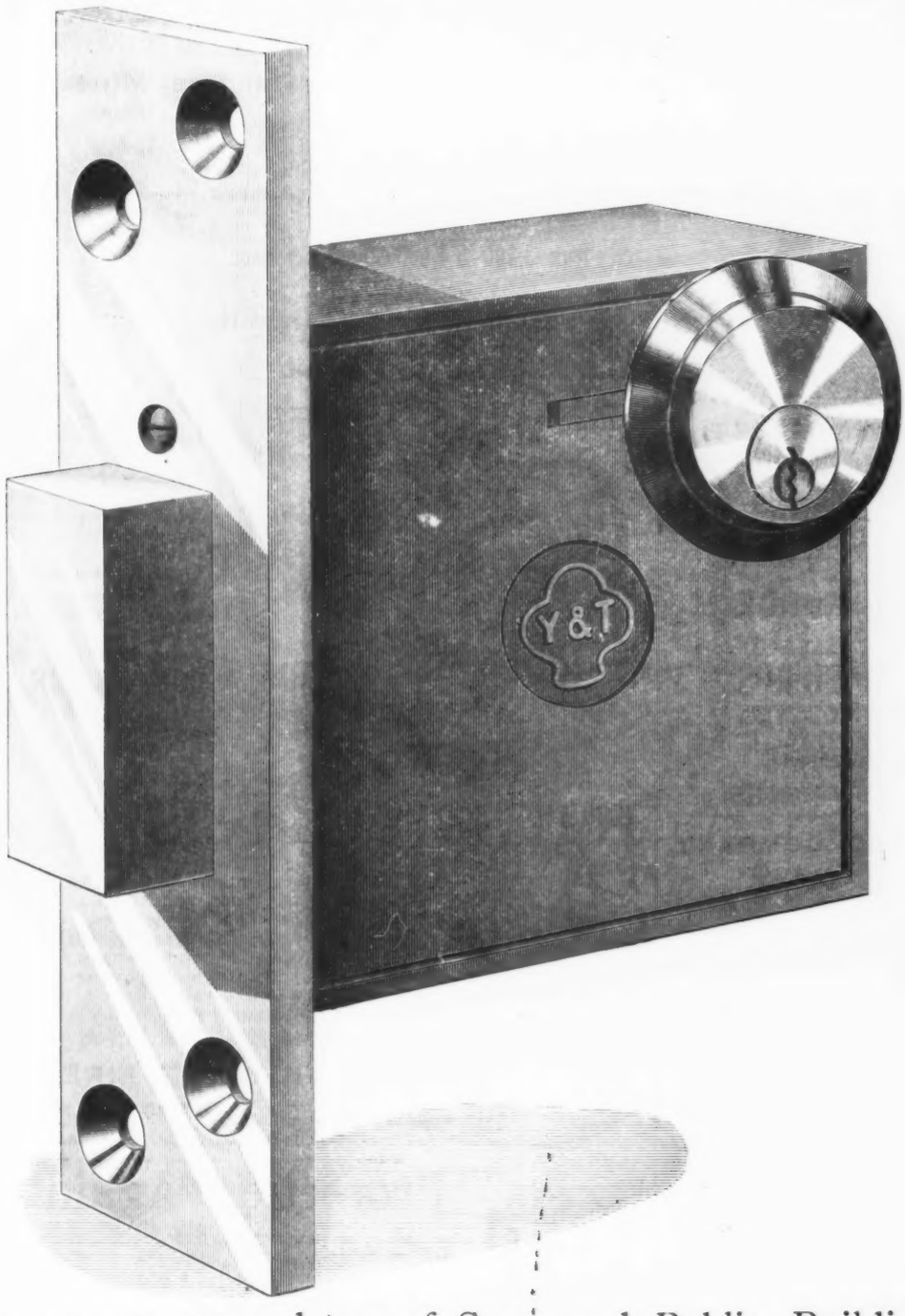


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Fig. 120.



Fig. 70.



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Fig. 209.



Fig. 381.



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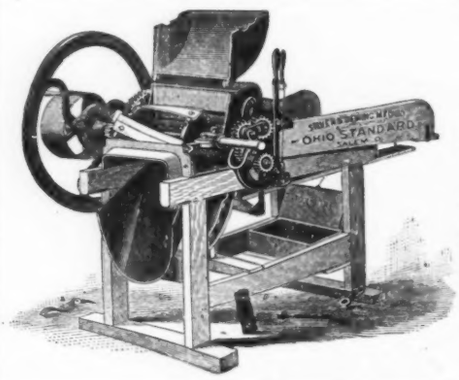
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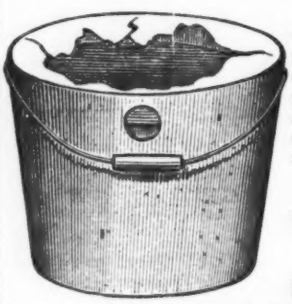
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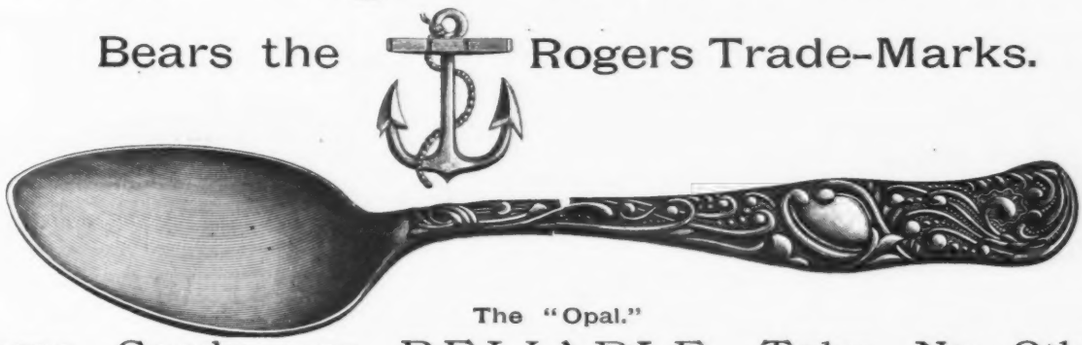
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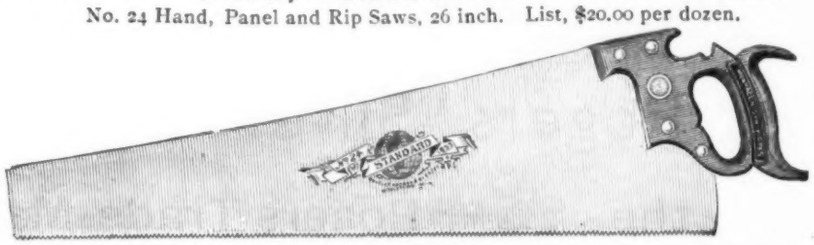
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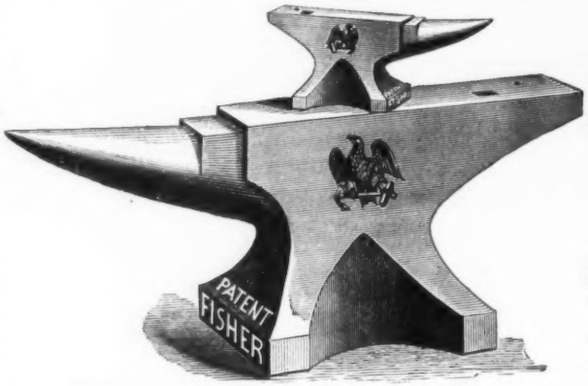
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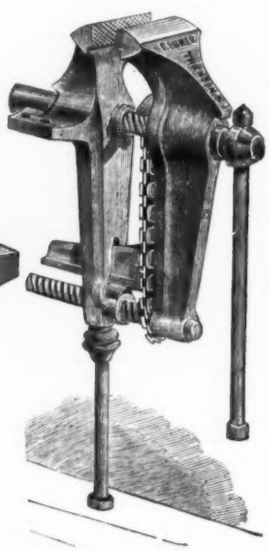
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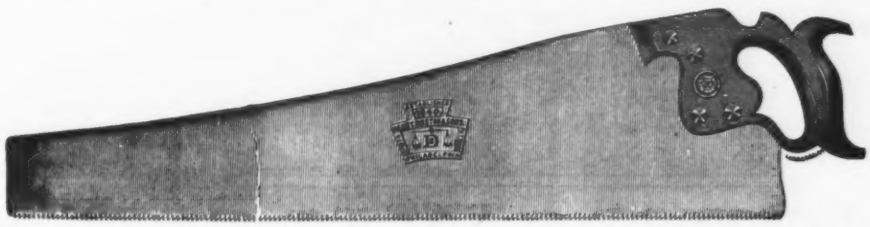
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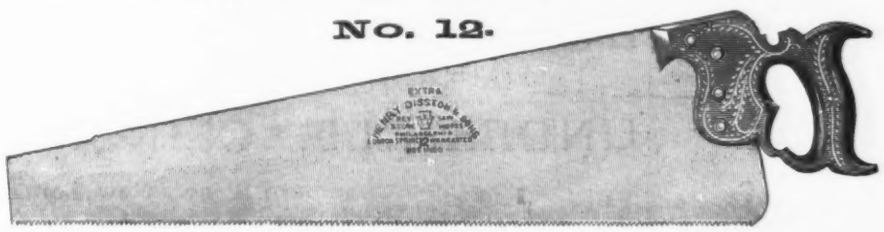
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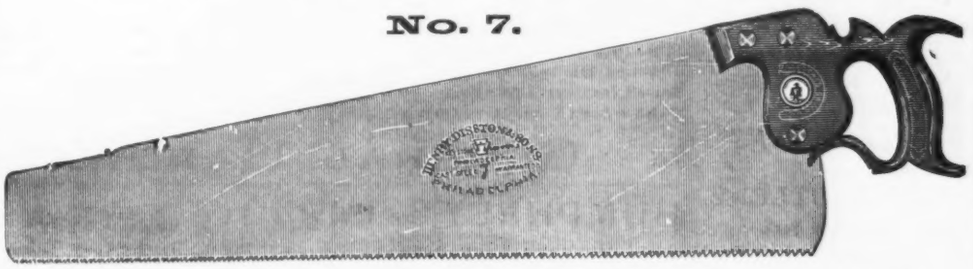
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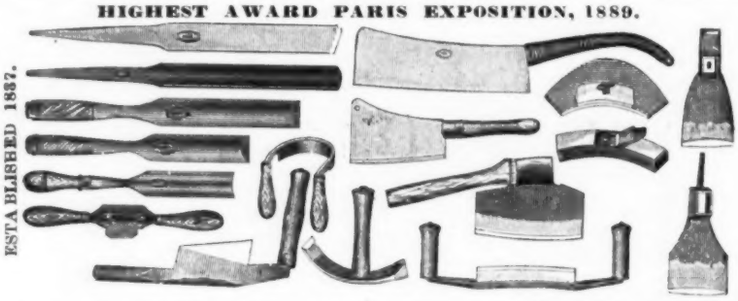
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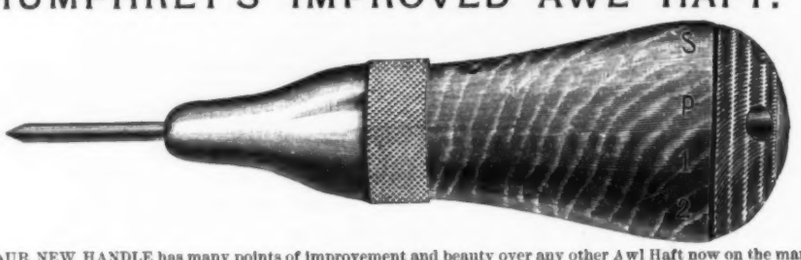
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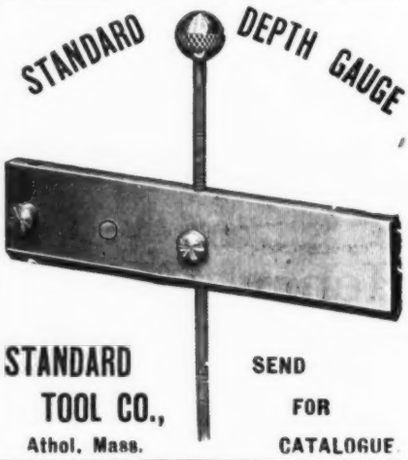
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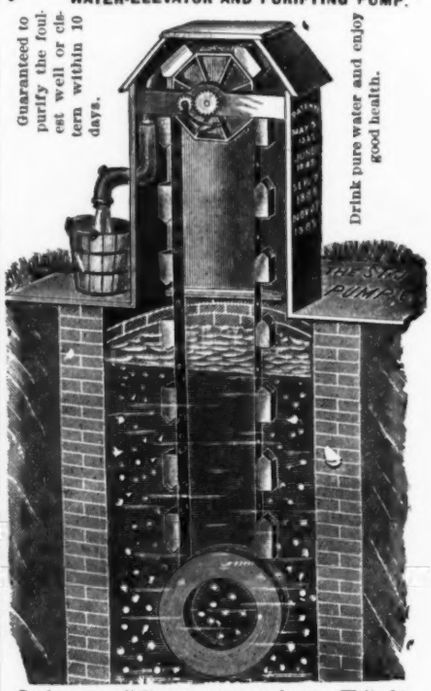
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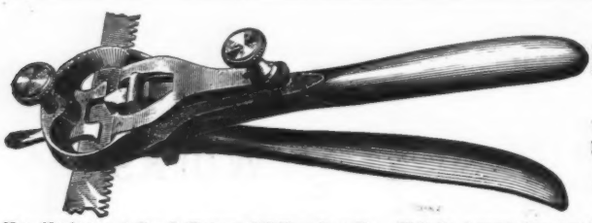
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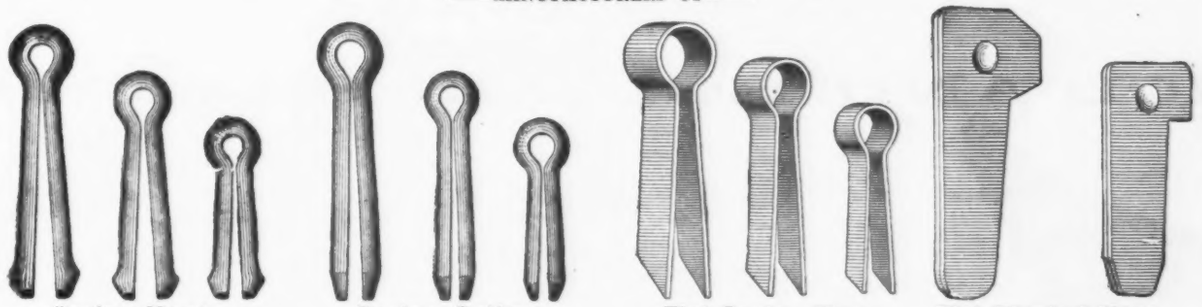
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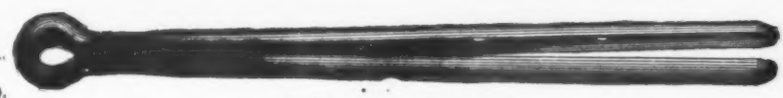
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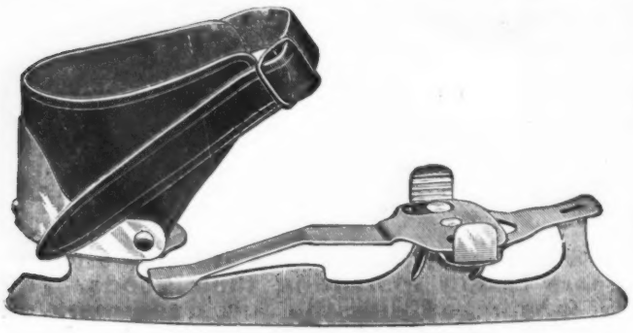
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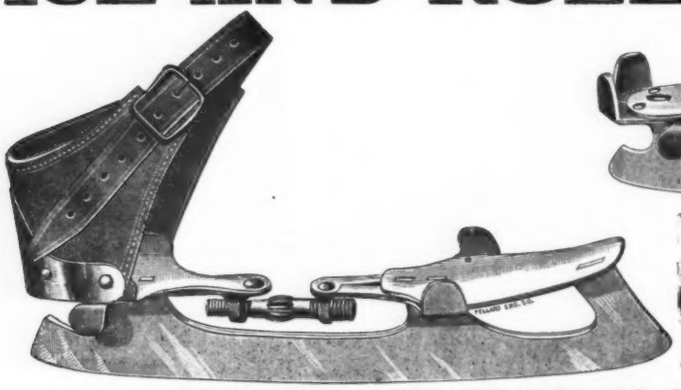
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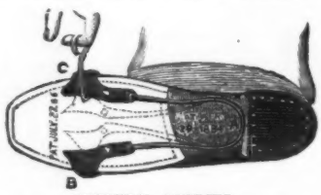
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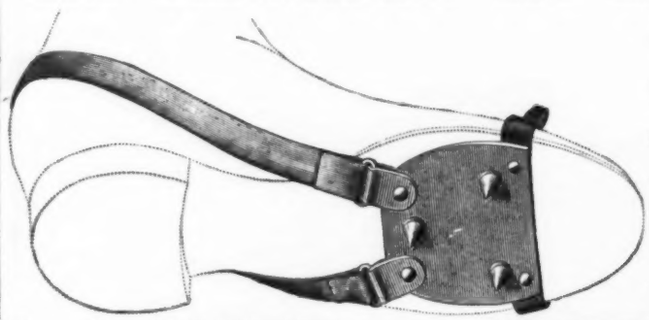
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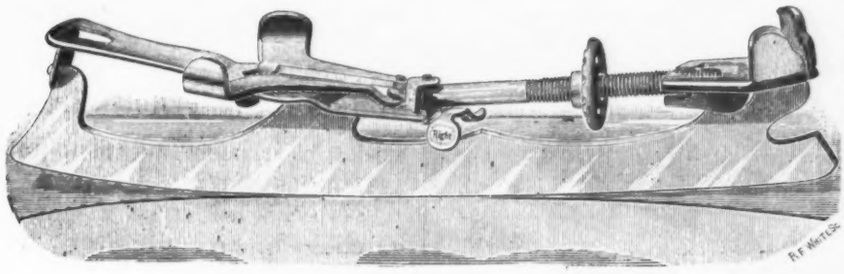
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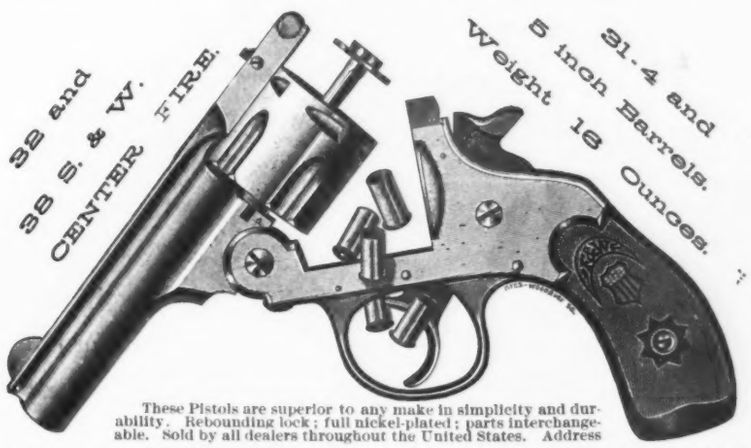
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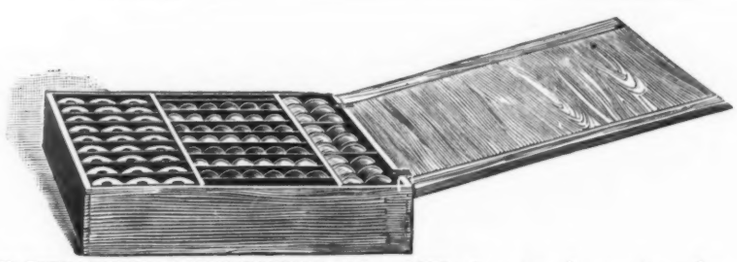
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The HENDRYX is all made of full-sized wire of medium temper and great strength; will not break or open. All sizes and patterns for all uses.

Our Tinned Bed Chain is actually coated with molten tin, not merely "washed."

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(Brass and Iron.)

A full line of this Chain in all sizes and all styles of link of specially high and uniform quality. The leading Chain.

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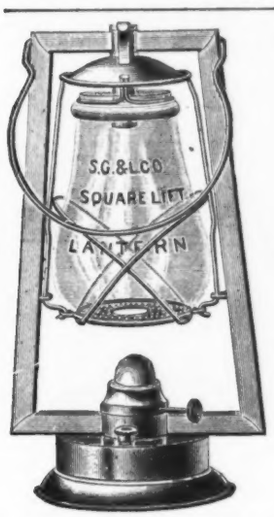
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Closes doors without slamming or breaking of Glass.



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Amidon's Corner Brace.

Globe Jaw and 2nd Improved Barber. Twelve best style Braces in the world. Send for catalogue.

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TEN SIZES,
$2.00 to $200 00

Sausage Stuffers.

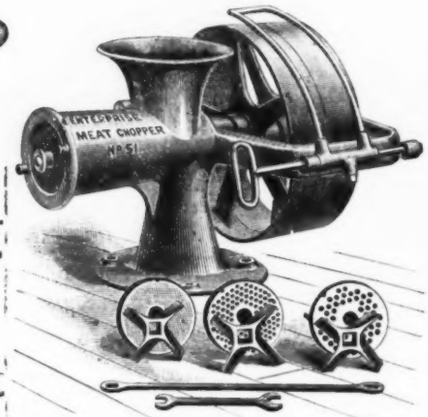
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Our Meat Choppers now contain steel plates drilled with many more holes than formerly. Consequently they cut much faster, finer and easier.

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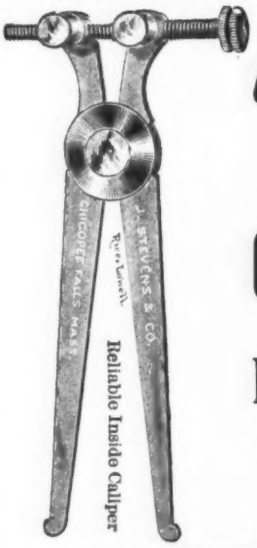
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Lawns are cleaned perfectly and quickly with these Rakes, requiring no picking of grass or leaves from the teeth and do not tear the sod when raking. The teeth are securely held in rake head and will never work loose or come out. Sold at competitive prices.

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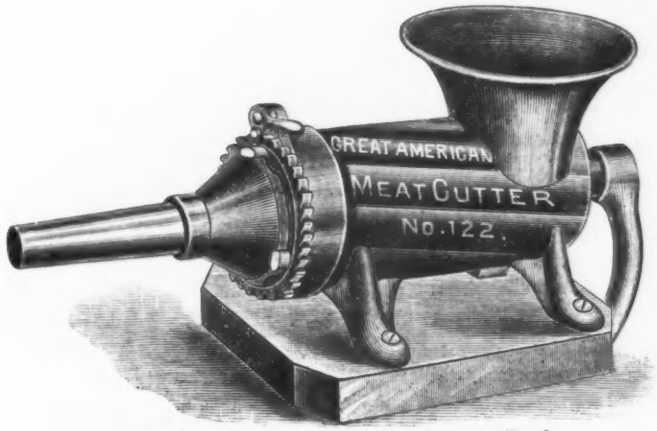


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GREAT AMERICAN MEAT CUTTER AND STUFFER ATTACHMENT.

PATENT REVERSIBLE KNIFE.

Best in the Market.

No. 112,	with Clamp,	will cut	2	lbs.	per minute, each,	$2.00
" 116,	" "	"	2	"	" "	2.75
" 118,	" "	"	3	"	" "	3.00
" 120,			3	"	" "	2.50
" 122,			4	"	" "	4.00
" 124,	40-inch Fly-Wheel,	300	"	per hour, each,		25.00
" 126,	to screw to table,	200	"	" "		8.00
" 128,	40-inch Fly-Wheel,	350	"	" "		30.00
" 130,	Geared, ½ power,	250	"	" "		20.00
" 132,	40-inch Fly-Wheel,	400	"	" "		35.00
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Reid's "Little Wonder" Tack Pull



THE BEST. WHY?

BECAUSE IT PULLS DOUBLE POINTED TACKS.

Reid's "Sure Grip" Nail Pull, the straightest lift Nail Pull made.

Manufactured by

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THE FROST KING Sidewalk Cleaner

Does the work quicker, easier and better than any other.

The strongest, cheapest and most desirable implement of its kind ever produced.

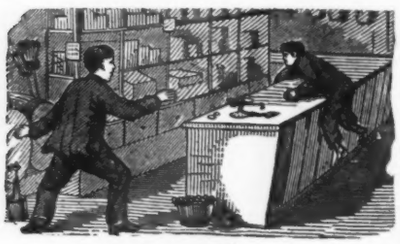
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Palmer Hardware Mfg. Co.,

TROY, N. Y.

New York Office, W. H. JACOBUS
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we used a fac-simile of the cut on the left to illustrate the use of our Alarm Till, Money Drawer we called it then, and have always found that it conveyed the idea intended graphically. Our Alarm Till will save its cost twenty times every year. It is made of hard wood, strongly dove-tailed together; has six round cups for coin; is always set; is as easily opened as a common drawer; will sound the alarm promptly if tampered with; combination changed in a second; needs no key, no repairs. Write us for prices on anything in the woodenware line you may need. We've got it ready to ship.





½ dozen crated for shipment.

Tucker & Dorsey Mfg. Co.,

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Can't Hurt the Hand

IS THE

Cheapest,
Strongest,
Quickest,
Best.

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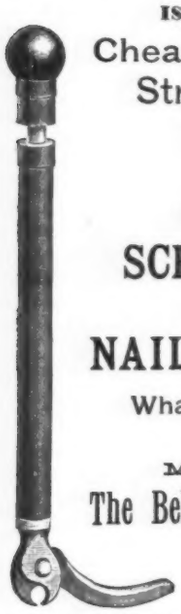
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Builders' Hardware. A manual for Architects, Builders and Housefurnishers. By CLARENCE H. BLACKWELL. Illustrated. Cloth.....$6.00

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Wrought Steel Hollow Ware.



"Empire" Cold Handle Steel Spiders.

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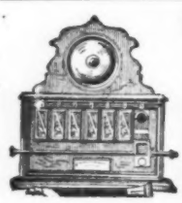
The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.



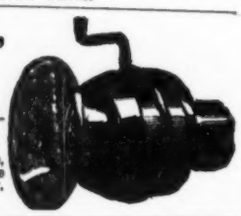
W. R. OSTRANDER & CO.,

195 and 197 FULTON ST., NEW YORK,

Manufacturers of

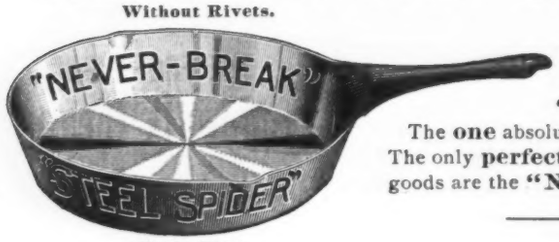
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Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



"NEVER-BREAK" COLD HANDLE STEEL SPIDERS "NEVER-BREAK"

Without Rivets.



All One Piece.

The only **One Piece** spider with cold handle is the **"Never-Break."**

The **one** absolutely **clean** handle. The only **perfectly** polished **steel** goods are the **"Never-Break."**

Riveted Handle.

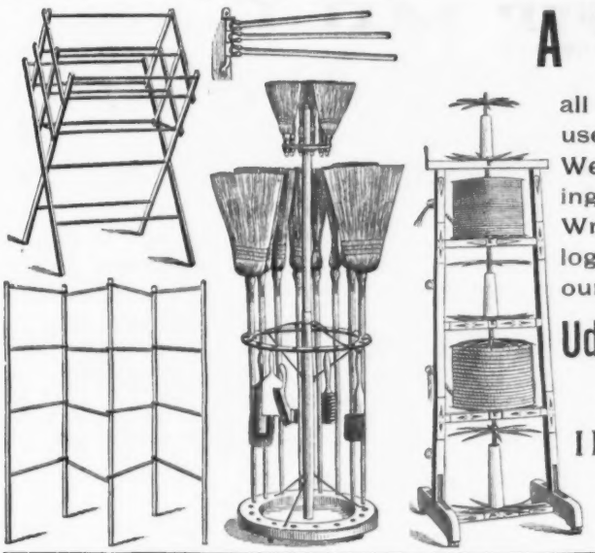


Only Two Pieces.

Wrought Steel Spiders, Kettles, Griddles, Stewpans, Stew Pots, Maslins, Scotch Bowls and Hotel Saucepans.

A FULL ASSORTMENT OF WROUGHT STEEL HOLLOW WARE.

Manufactured only by **THE BRONSON SUPPLY CO., Cleveland, Ohio.** N. Y. Office, 51 Cliff St.



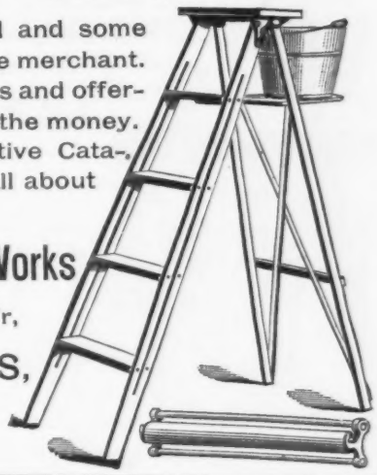
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all of which can be sold and some used by any live hardware merchant. We are making low prices and offering the best goods for the money. Write us for a descriptive Catalogue that will tell you all about our goods.

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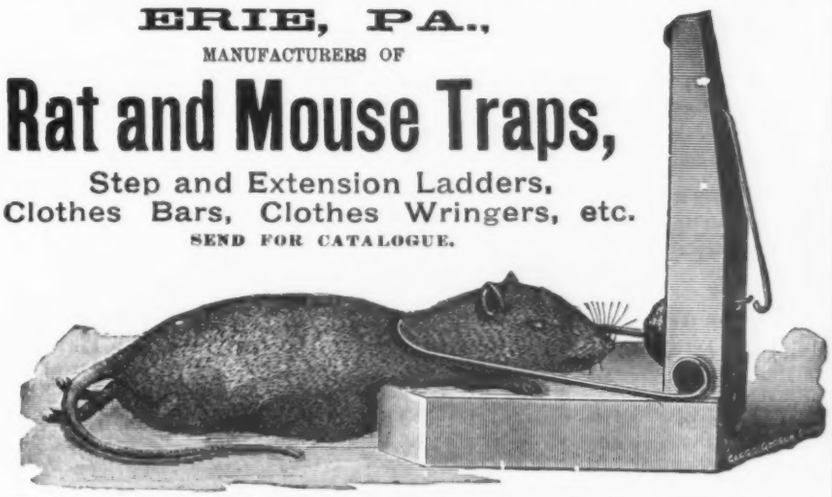
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MANUFACTURERS OF

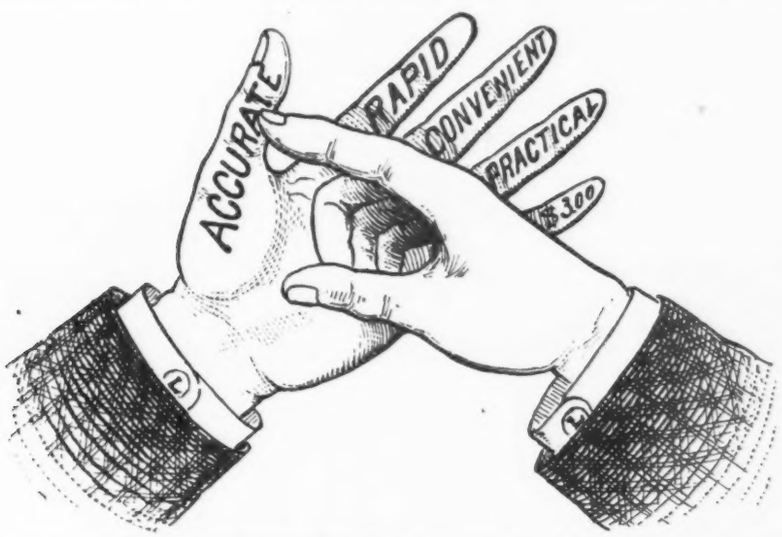
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Step and Extension Ladders,
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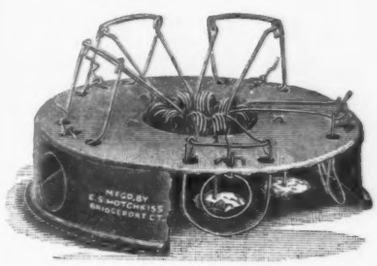
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Manufacturer of

HARDWARE.

Patent Rat and Mouse Traps.

Lemon Squeezers, Wrenches,
Horse and Toilet Clippers,
Shawl Straps, &c.



Patented Aug. 25, 1874..... ...No. 154,432
" Dec. 28, 1886..... ....No. 355,016

COMMON MOUSE TRAPS
BEST FOR USE!

Ripley Mfg. Co., Unionville, Conn



Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks. Magnetic Tack Hammers, Mallets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side 2 lb. Lap Board.

INTERCHANGEABLE
LOCK-CORNER SHELF BOXES.
Screw Cases, &c.
FOR THE HARDWARE TRADE
S. H. GREEN,
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THE QUEEN ANNE SCREEN CO.,
of Burlington, Vt.
MANUFACTURERS OF
Improved Adjustable Window Screens.

THE QUEEN ANNE. With box panels; the only screen made and finished alike on both sides.
THE EUREKA. The best cheap extension screen on the market.
SCREEN DOORS. Finished all ready to hang. Sticks Corners, Improved Frames, &c.
Send for Circular and Price List.



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ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.



Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.



The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

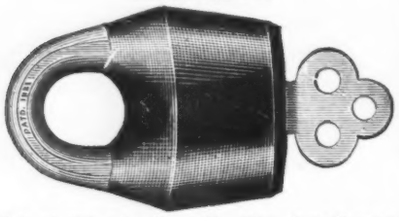
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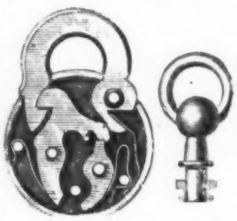
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Bronze, Brass and Malleable Iron. Red, Black and Bright Brown Finish. Send for complete catalogue and discounts.

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PATENT PERFECTION PADLOCK



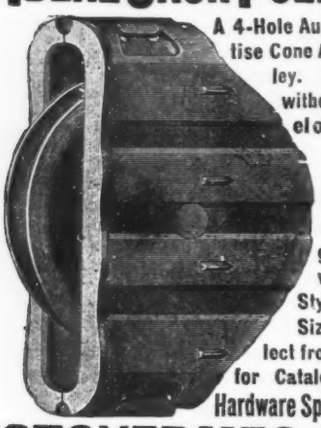
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Sizes, ¾ inch to 2½ inches, of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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Send for Price Lists and Circulars.

IDEAL SASH PULLEY.



A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

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145 River St., Freeport, Ill.

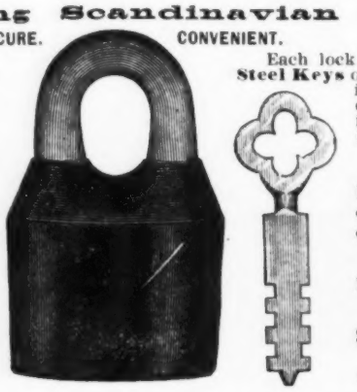
Self-Locking Scandinavian Padlocks.

NEW LINE. SECURE. CONVENIENT. DURABLE

In compliance with popular demands for a lower priced line of padlocks to work on our self-locking principle, we are now making a

Special, Cheap, New Line.

Self-Locking, with Maroon Finish and Polished Shackles

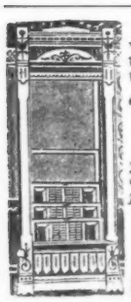


Each lock has two handsome **Cast Steel Keys** of unique design and light in weight, as shown on accompanying cut. This line is made especially for export and cheap trade.

Brass, Bronze Mal. Iron and Nickel Plated Self-Locking Scandinavian Padlocks.

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Slaymaker, Barry & Co.
Manufacturers,
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you will miss it in *style, quality, durability, convenience and price.* Agents wanted.

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"TRIUMPH" WIRE CHAINS, Halter Chains, Dog Chains, Kennel Chains, Coil Chains, &c.; the most perfect Chains made for their various purposes; made of **Steel Wire** and possess great strength; much lighter than sheet metal or welded chains; no sharp edges; do not kink; no bad welds; in fact the most salable and serviceable chains the trade can handle. Also "Monarch" Sash Chain, Plumbers' Safety Chains, &c. Send for catalogue.

THE BRIDGEPORT CHAIN CO., Bridgeport, Conn.



The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

CALDWELL MFG. CO., Rochester N. Y.

READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

"The New York Safety Dumb Waiter,"
"The Manhattan Dumb Waiter,"
"The Improved Humphrey Hand Elevator,"
Made specially to be sold by Hardware Stores. Thousands in use. Catalogues on application.

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NEWARK, NEW JERSEY.
Formerly of Poughkeepsie, New York.

Double Acting Spring **BUTTS**

SABIN'S LEVER DOOR SPRINGS
Coil, and Sabin's Volute Springs
For various purposes made to order.
SABIN MACHINE CO., Montpelier, Vt.

NO EQUAL



FOR STRENGTH.

LEWIS' PATENT STRAP AND T HINGES

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Columbus, Ohio.

Discounts mailed on application.



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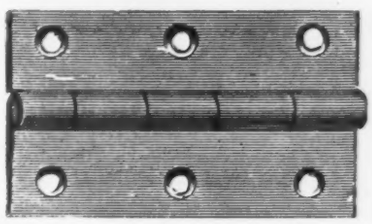
STEEL HANGER AND RAIL.

Derailment Impossible. Occupies least possible space.

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Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

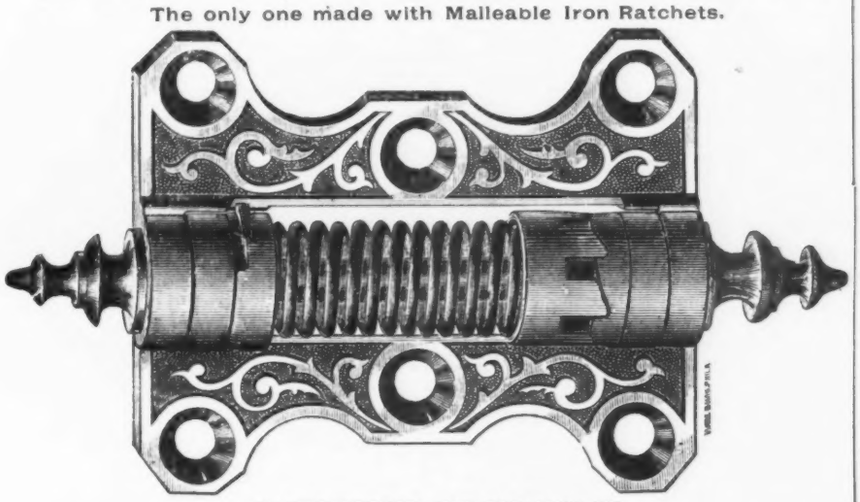
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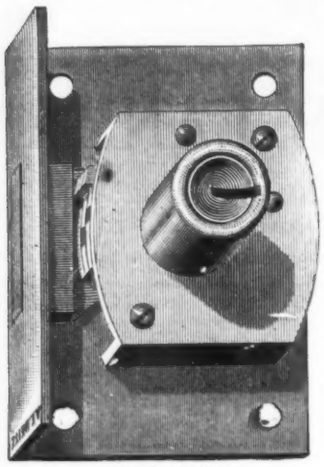
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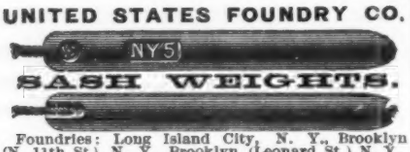
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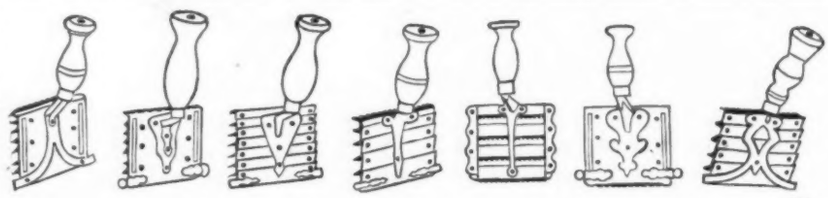
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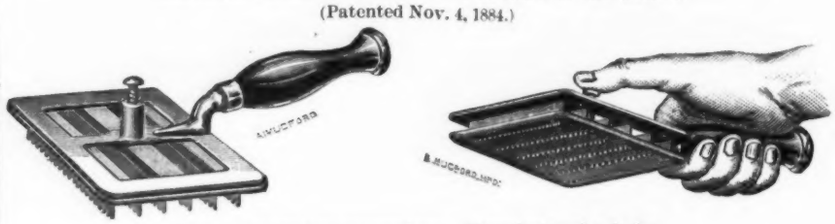
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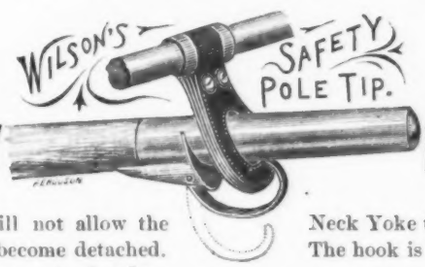


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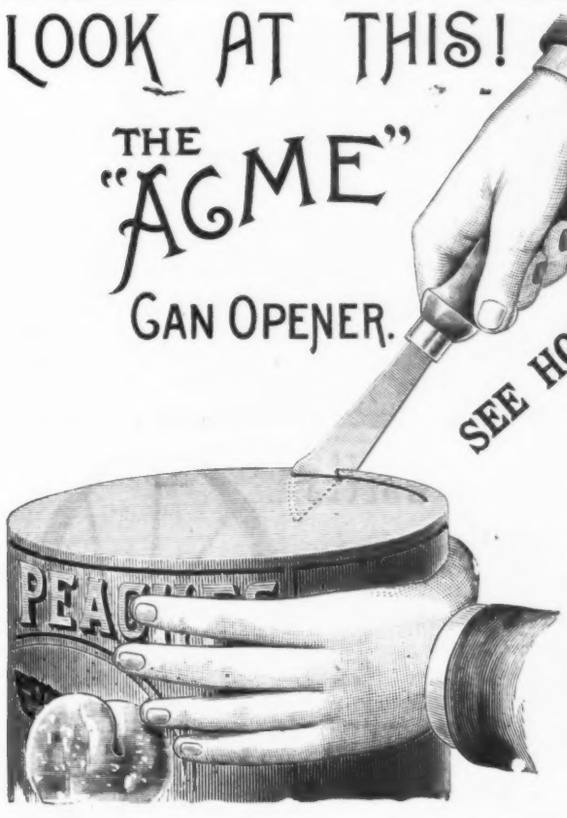
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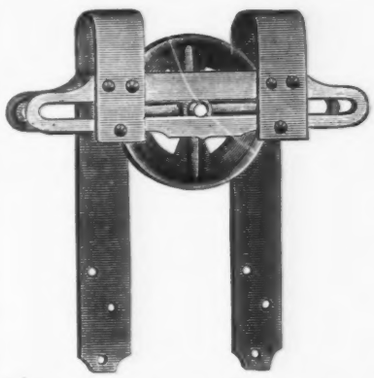
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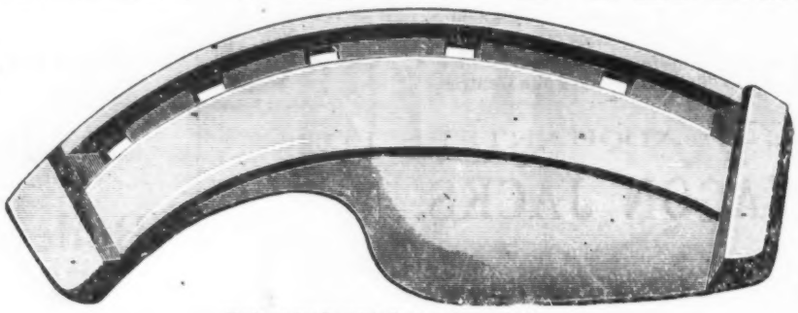
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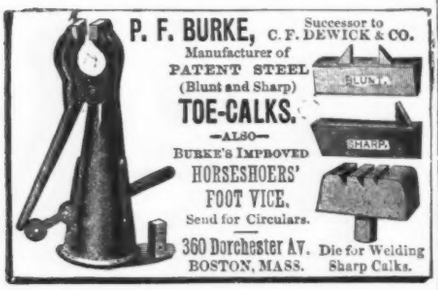
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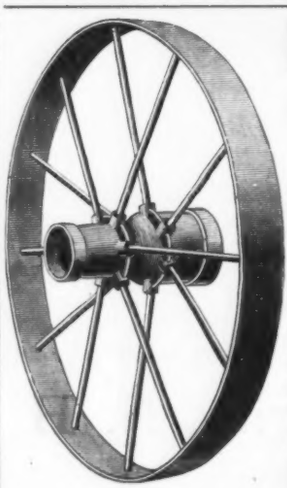
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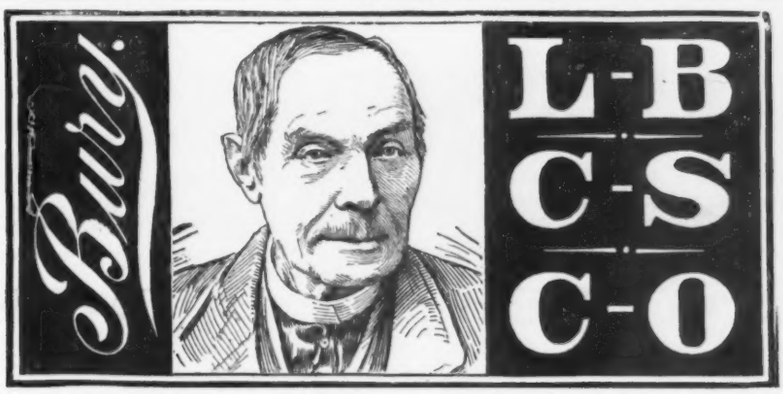
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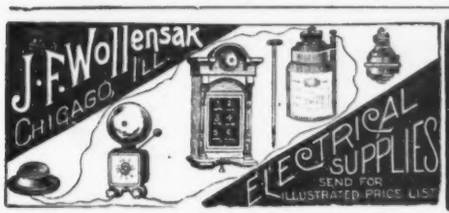
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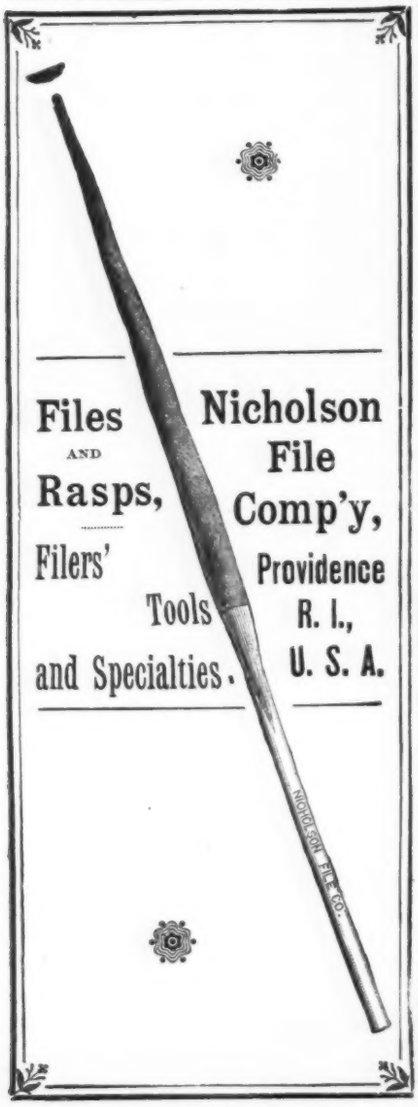
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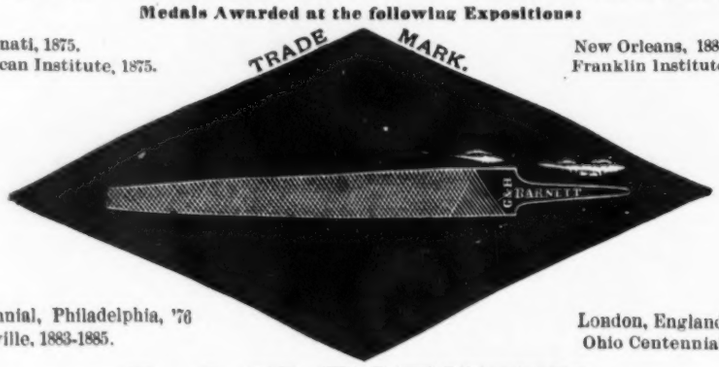
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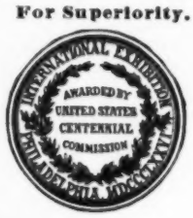
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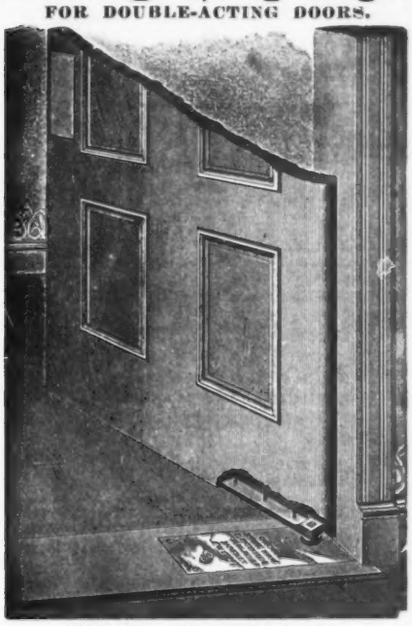
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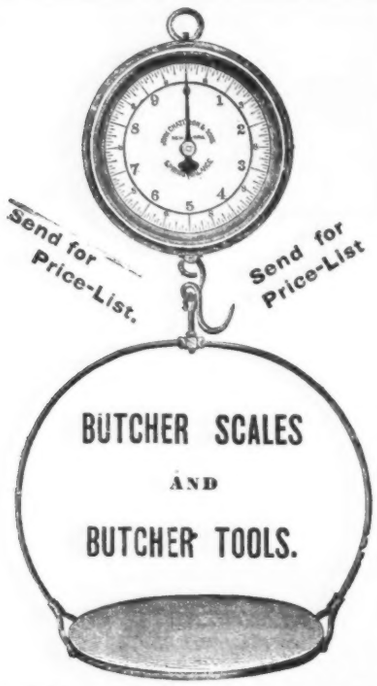




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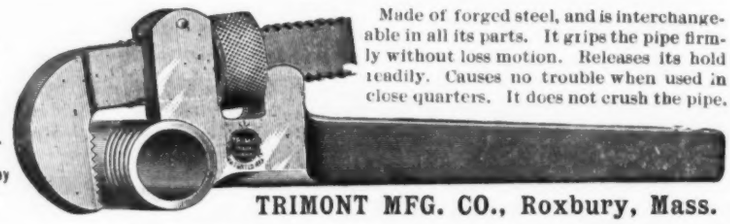
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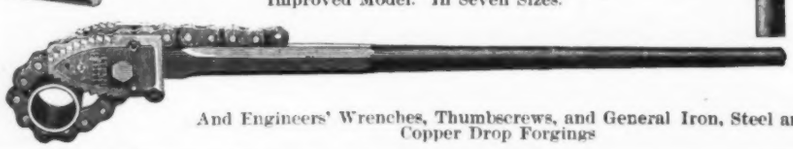
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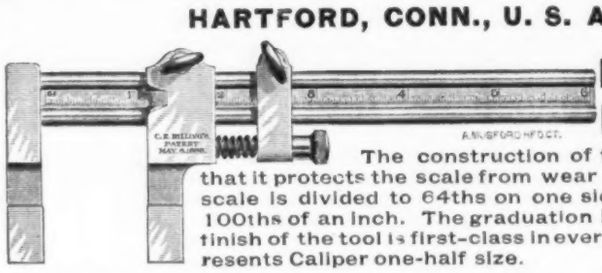


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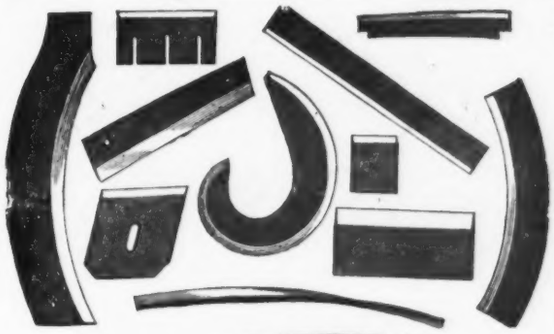
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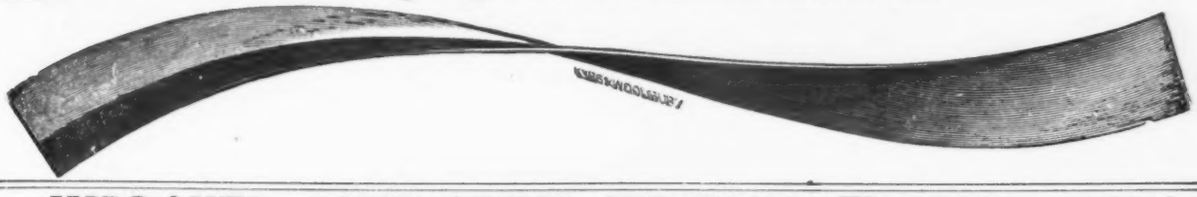
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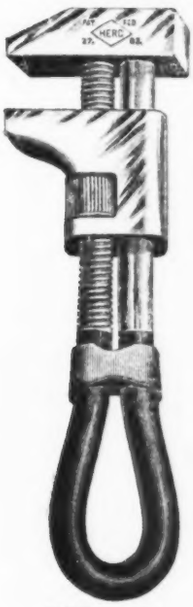


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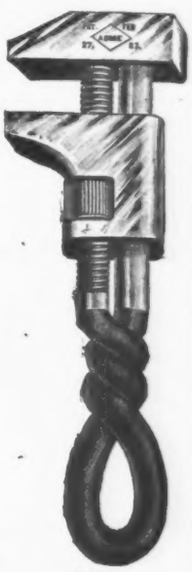
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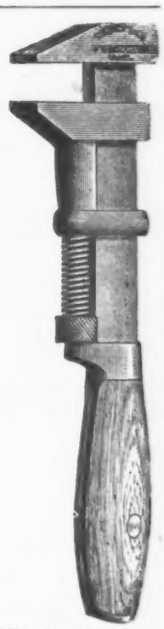
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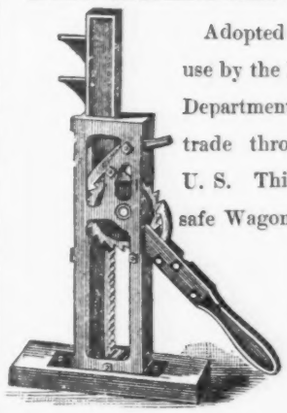
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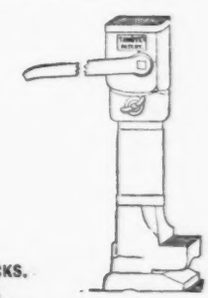
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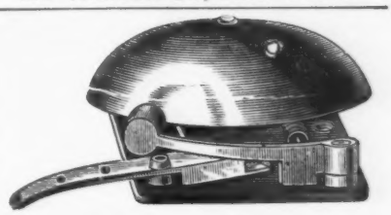


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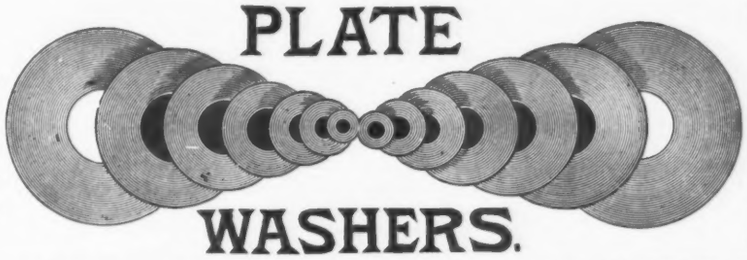
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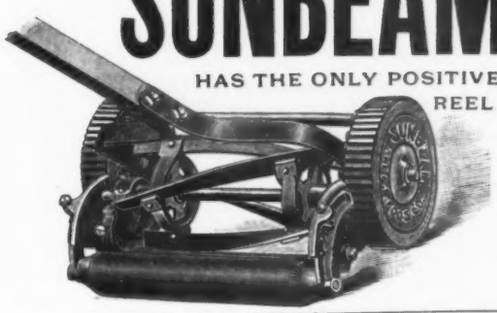
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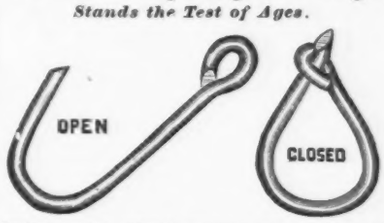
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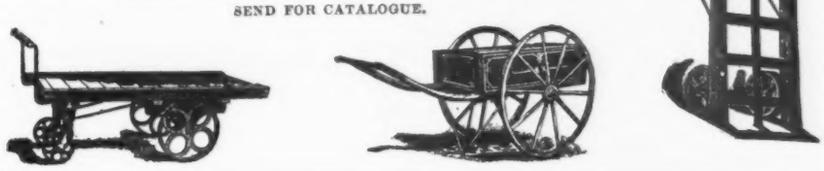
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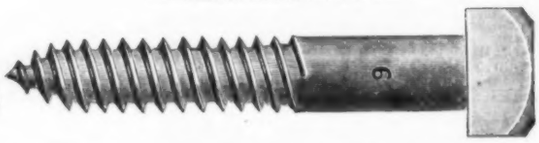
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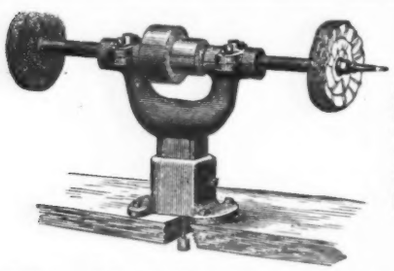
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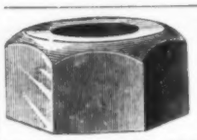
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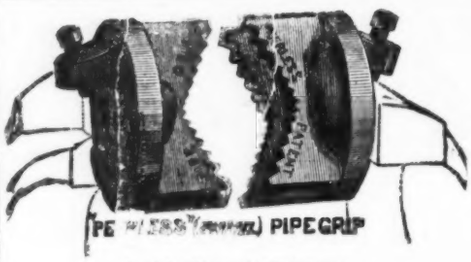
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Chisels, *Manufacturer of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks, Conn.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
D. E. Whiton Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.

Coal.
Borden & Lovell, 70 West, N. Y.
Pardee, A. & Co., 111 Broadway, N. Y.

Coat and Hat Hooks.
Hamblin & Russell Mfg. Co., Worcester, Mass.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia.
Lane Bros., Poughkeepsie, N. Y.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Schoonmaker, J. M., Pittsburgh.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited), 4 and 6 Warren, N. Y.

Conveyers.
Borden & Selleck Co., Chicago, Ill.

Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.

Cordage.
Elizabethport Cordage Co., 46 South, N. Y.
Samson Cordage Works, Boston, Mass.

Cork Pullers.
Meriden Malleable Iron Co., Meriden, Conn.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Cinn., O.
Jersey City Galvanizing Co., Jersey City, N. J.
Miller, Jas. A. & Bro., Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.
Standard Iron Co., Bridgeport, Ohio.
Thompson Mfg. Co., Cleveland, O.

Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 8th, N. Y.

Cranes.
Chester Foundry & Mch. Co., Chester, Pa.
Detroit F'dry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass.
Southington Cutlery Co., Southington, Conn.

Cutlery, *Importers of.*
Boker, Hermann & Co., 103 Duane, N.Y.
Clatworthy, F. & W., N. Y.
Field, Alfred & Co., N. Y.

Cutlery, *Manufacturers of.*
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Northampton Cutlery Co., Northampton, Mass.
R. Wallace & Sons Mfg. Co., 21 Park Place, N. Y.
Wilson, John, Sheffield, England.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutting Nippers.
Todd, H. B., Meriden, Conn.

Cutting Tools.
Higganum Hdw. Co., Higganum, Conn.

Dog Collars.
Chapman Mfg. Co., Meriden, Conn.
Medford Fancy Goods Co., 44-46 Duane, N. Y.

Door Checks.
Morton Door Check & Spring Co., Boston, Mass.

Door Hangers, House and Barn.
Chicago Spring Butt Co., Chicago, Ill.
Lane Bros., Poughkeepsie, N. Y.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Door Knobs.
Bardsley, J., 59 Elm, N. Y.

Drilling Machines.
Boynton & Plummer, Worcester, Mass.
Brown, McClure & Wales, Boston, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Olmsted, L. H., Hasbrouck Heights, N.J.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Drop Forgings.
Beecher & Peck, New Haven, Conn.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. & Son, Brooklyn, N. Y.
Merrill Bros., 26 First, Brooklyn, E. D.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spiers & Moore, Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmont & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. & Co., Brooklyn, N. Y.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Haven, Jas. L. Co., Cincinnati, O.
Storm Mfg. Co., Newark, N. J.

Dynamite.
N. Y. Powder Co., 62 Liberty, N. Y,

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Motors.
Connecticut Motor Co., Plantsville, Ct.
Thomson-Houston Motor Co., Boston, Mass.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of,*
Haven, Jas. L. Co., Cincinnati, O.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery Wheels.
Diamond Mach. Co., Providence, R. I.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass.
Springfield Emery Wheel Mfg. Co. Springfield, Mass.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Varnish Co., Newark, N. J.
Nubian Iron Enamel Co., Chicago, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gordon, Strobel & Laureau, Phila.
Kennedy, Julian, Pittsburgh, Pa.
Lean, D. R., Pittsburgh, Pa.
Lewis Bros. & Co., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
M. V. Smith, Pittsburgh, Pa.
Smythe, S. R. & Laughlin Co., Pittsburgh, Pa.
Stein & Schwartz, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.

Engines, Gas.
Schleicher, Schumm & Co., Phila., Pa.

Engines, Steam, *Makers of.*
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Foundry & Machine Dept., Harrisburg, Pa.
Gordon, Strobel & Laureau, Phila., Pa.
Leffel Water Wheel & Engine Co., Springfield, Ohio.
Norwalk Iron Works Co., S. Norwalk
Pen Argyl Iron Works, Pen Argyl, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co. Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Steam Economizer.
Webster Warren & Co., Phila., Pa.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Surpless, Dunn & Alder, 97 Chambers, N. Y.

Faucets, Self-Measuring
Enterprise Mfg. Co., Phila, Pa.
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
National Pipe Bending Co., New Haven, Conn.
Warren Webster & Co., Phila., Pa.

Fencing.
Central Expanded Metal Co., Pittsburgh
Champion Iron Fence Co., Kenton, O.
Van Dorn Iron Works, Cleveland, O.

Fence Machines.
Garrett, S. H., Mansfield, Ohio.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Chelsea File Works, Norwich, Conn.
Everhart, James M., Scranton, Pa.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borger & O'Brien, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander, James & Son, Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Extinguishers.
Black Cloud Chemical Fire Extinguisher Co., Cleveland, O.
Worcester Fire Pail Co., Worcester, Mass.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

(See Alphabetical Index, Page 94.)

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.
Hendryx, Andrew B. & Co., New Haven, Conn.

Fluor-Spar.
Mullins' Fluor-Spar Lead Mining Co., Chicago, Ill.

Fodder Cutters.
Silver Mfg. Co., Salem, O.
Wayne Works, Richmond, Ind.

Forges, Portable, &c.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F., Boston, Mass.

Forgings, Iron and Steel.
Belden Mch. Co., New Haven, Conn.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Audubon Mch. Wks, New Haven, Conn.
Colliau, Victor, Detroit, Mich.
Detroit Foundry Equipment Co., Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fuel Burner
Aerated Fuel Co., Springfield, Mass.
Archer, J. B., 45 Broadway, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Gas Producers.
Taylor Gas Producer Co., Phila., Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gears.
Lexington Gear Wks, Lexington, Mass.

Gear Cutters.
D. E. Whiton Mach. Co., New London, Conn.

Glass Boards.
Lufkin Rule Co., Cleveland, O.

Glass Cutters.
Monoe, S. G., Bristol, Conn.

Glass Tube Cutters.
Hunt & Connell, Ltd., Scranton, Pa.

Glue.
Russia Cement Co., Gloucester, Mass.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Mach. Co., Providence, R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers. N. Y.
Jacobus. W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Chantrell Tool Co., Reading, Pa.
Kenton Lock Mfg. Co., Kenton, Ohio.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Shepard Hdw. Co., Buffalo, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.
Graham, John H. & Co., 115 Chambers, N. Y.
Harmon & Dixon, 118 Chambers, N. Y.
Naylor & Flack, 121 Chambers, N. Y.
Surpless, Dunn & Alder, 97 Chambers, N. Y.
Tommins & Adams, 116 Chambers, N.Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Am. Bit, Brace Co., Buffalo, N. Y.
Belden Machine Co, New Haven, Conn.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
McLean, F. W., Pittsburgh, Pa.
Paine, Diehl & Co., Philadelphia, Pa.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., N. Y.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Heating, Steam and Hot Water.
Broomell, Schmidt & Co., Ltd., York, Pa.

Heavy Plate & Sheet Iron Work
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.

Hog Rings and Ringers.
Brown, J. H. & Co., Chicago, Ill.
Comstock, W. A. & Co., Chicago, Ill.
St. Louis Screw Co., St. Louis, Mo.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Energy Mfg. Co., Philadelphia, Pa.
Harrington, E., Son & Co., Phila.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel. J. G., Reading, Pa.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y.

Horse Nails. *Makers of.*
Ausable Horse Nail Co., 4 Warren, N.Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes, *Makers of.*
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Clay, John H., Phila., Pa.

Hot-Blast Stoves.
Witherow, James P., Pittsburgh, Pa.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
McCoy & Sanders, 26 Warren St., N.Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Penn Lock Works, Philadelphia, Pa.
Sayre, L. A., Newark, N. J.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron, *Manufacturers' Agents.*
Cox, Justice, Jr., & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
White & McLure, Pittsburgh, Pa.

Iron, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Alan Wood Co., Philadelphia.
Burden Iron Co., Troy, N. Y.
Lukens Iron & Steel Co., Coatesville, Pa.
Mahoning Valley Iron Co., Youngstown, Ohio.
Montour Iron & Steel Co., Danville.
Moorehead-McCleane Co., Pittsburgh,
Passaic Rolling Mill Co., Paterson.
Phœnix Iron Co., 410 Walnut, Phila.
Slatington Rolling Mill Co., Slatington, Pa.
Springfield Iron Co., Springfield, Ill.
Stuart & McLean, Pittsburgh, Pa.
Whitney, A. R. & Co., 58 Hudson, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport.

Iron and Steel, Swedish.
Lewander & Co., Boston, Mass.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Brokers.
Etting, Edward J., Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Commission Merchants.
Hart, Wm. R. Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Parkes & York, Chicago, Ill.
Read, Irwin & Read, Pittsburgh, Pa.
Wister, L. & R. & Co., Philadelphia.

Iron Ore.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron Dealers.
Abbott, Jere & Co., N. Y. and Boston.
Blakley & McLellan. Philadelphia, Pa.
Borden & Lovell, 70 & 71 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hicks & Dickey, Philadelphia, Pa.
Himrod, Chas & Co., Chicago, Ill.
Hoffman, J. W. & Co., Philadelphia.
Judson, R. F., 457 & 459 Water, N. Y.
Kesley, Jerome & Co., Philadelphia.
Lindsay, Jas. G. & Co., Philadelphia.
Lundberg, Gustaf, 38 Kilby, Boston.
Naylor & Co., 45 Wall, N. Y.
Ogden & Wallace, N. Y.
Pierson & Co., 24 to 27 West, N. Y.
Richards, D. W. & Co., N. Y.
Sites, Wheeler & Co. Philadelphia.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Wilson, E. H. & Co., Philadelphia.
Whitney, A. R. & Co., N. Y.

Iron, Pig, *Importers of.*
Abbott, Jere & Co. (Swedish), New York and Boston.
Lundberg, Gustaf, Boston, Mass.
Moffatt, Frank D. & Co, 81 Fulton, N.Y.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
Cincinnati Corrugating Co., Piqua, O.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
Van Dorn Iron Works, Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Prybil P., 467 W. 40th, N. Y.
Sebastian, May & Co., Cincinnati, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh

Lawn Mowers.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Gibbs Mfg. Co., Canton, O.
Graham, John H. & Co., 113 Chambers St., N. Y.

Lemon Squeezers.
Adams, F. F. Co., Erie, Pa.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Locks & Knobs, *Manufacturers of.*
Deitz, A. E., 97 Chambers, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Yale & Towne Mfg. Co., Stamford.

Lumbering Tools.
Champion Tool & Handle W'ks, Evart, Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.
Toland & Son, Baltimore, Md.

Machinery.
Adt, John & Son, New Haven, Conn.
Am. Tool Co., Cleveland, Ohio.
Baird, U. Mchy. Co., Pittsburgh, Pa.
Barnes, W. F. & John, Rockford, Ill.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Briggs, Marvin, 12 Broadway, N. Y.
Carlins Sons, Thos., Allegheny, Pa.
Cruikshank, D. B., Providence, R. I.
Deering, Wm. & Co., Chicago, Ill.
Fairmount Mch. Co., Philadelphia, Pa.
Fall River Iron Works Co., Fall River, Mass.
Farr, Mark C., Chicago, Ill.
Garvin Mch. Co., 130 Centre, N. Y.
Harrington, E. Son & Co., Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Makinnon, J. A. Mch. Co., 22 Warren,
Moore Mfg. & Fdry Co., Milwaukee, Wis
Newark Machine Tool Works, Newark, N. J.
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Prentiss Tool & Supply Co., N. Y.
Prybil, P., 467 W. 40th, N. Y.
Robertson, W. H., Chicago, Ill.
Sebastian, May & Co., Cincinnati, O.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa.
Snell, Henry L., Philadelphia, Pa.
Stiles & Parker Press Co., Middletown, Conn.
Stokes & Parrish Machine Co., Phila.
Stow Flexible Shaft Co., Ld., Phila.
West, Thos. D. F'dy Co., Cleveland, O.
Wetherill, Robert & Co., Chester, Pa.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, Albert B., St. Louis, Mo.
King, J. M. & Co., Waterford, N. Y
Pratt & Whitney Co., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Brooklyn Mallett & Handle Co., Brooklyn, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Buchanan, Va.
Charlestown, W. Va.
Pittsburgh, Kan.
Saugerties, N. Y.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Silver Mfg. Co., Salem, O.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simon & Blonder Bros., Chicago, Ill.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Hunt & Connell, Scranton, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Molding Sand.
Paxson, J. W. & Co., Phila.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Belden Machine Co., New Haven, Conn.
Hagen & Reid, W. Troy, N. Y.

Nails.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Oxford Iron Co., 81 Washington, N. Y.
Stebbins, C. J., 103 Reade, N. Y.

Nails, Cut.
Borden & Lovell, 70 West, N. Y.

Neck Yokes.
Covert, E. Mfg. Co., Farmer Village, N.Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Reed & Prince, Worcester, Mass.
Russell, Burdsall & Ward, Port Chester
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines,
Dunham Nut Mch. Co., Unionville Conn.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass.

Oil Stones.
Chaillaux, J. A. & Bro., Orangeville, Ind.
Chase, Geo., 107th & Harlem R., N. Y.
Pike Mfg. Co., Pike Station, N. H.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Haven, Jas. L. Co., Cincinnati, O.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Chalmers-Spence Co., 419 8th, N. Y.
N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Cleveland Iron Ore Paint Co., Cleveland, O.

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Patent Solicitors.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Perforated Metal.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Picket Guards.
Hartmann Mfg. Co., Beaver Falls, Pa.

Picture Cord, Wire.
Hendryx, Andrew B. & Co., New Haven, Conn.
Tate & Co., Malden, Mass.

Pig Iron.
Forsyth, Hyde & Co., Chicago, Ill.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Moffatt, F. D. & Co., 81 Fulton, N. Y.
Mont Alto Iron Co., Mont Alto, Pa.
Montour Iron and Steel Co., Reading.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, *Makers of*
Donaldson Iron Co., Emaus, Pa.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Spiral Weld Tube Co., 43 John. N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Pokes.
Bishop, A. W., Berea, Ohio.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
Chieftain Hay Rake Co., Canton, Ohio
Graham, Jno. H. & Co., 113 Chambers, N. Y.

Poultry Nettings.
Clinton Wire Cloth Co., Clinton, Mass. "Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass.

Powder.
Laflin & Rand Powder Co., 29 Murray N. Y.
N. Y. Powder Co., 62 Liberty, N. Y.

Power Hammers.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
McCoy & Sanders, 26 Warren, N. Y.

Power Punches and Shears.
Ferracute Mch. Co., Bridgeton, N. J.

Presses, Dies, &c.
E. W. Bliss Co., Brooklyn, N. Y.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
McCoy & Sanders, 26 Warren, N. Y.
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., New York.
Hooker-Colville Steam Pump Co., St. Louis, Mo.
Hughes Steam Pump Co., Cleveland, O
McGowan, John H. Co., Cincinnati.
Norwalk Iron Wks. Co., So. Norwalk Conn.
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Enterprise Co., Sandwich, Ill.
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
Superior Machine Co., Springfield, O.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, Ohio.
Ferracute Mch. Co., Bridgeton, N. J.
Old Colony Rivet Co., Kingston, Mass.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

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Radiators.
Nason Mfg. Co., 71 Beekman, N. Y.

Rails, Iron and Steel.
Allentown Rolling Mills, Allentown.
Cambria Steel—Cambria Iron Co. Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Montour Iron & Steel Co., Danville.
Moffatt, Frank D. & Co., 81 Fulton, N.Y.
Pennsylvania Steel Co., Steelton, Pa.
Scranton Steel Co., 47 Broadway, N. Y

Railway & Machinists' Supplies
Hicks & Dickey, Philadelphia, Pa.
Rogers, H. A. & Co., 19 John, N. Y.
Walbaum, W. H., Philadelphia, Pa.

Rat and Mouse Traps.
F. F. Adams & Co., Erie, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Am. Knife & Razor Co., St. Louis, Mo.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey Razor Co., Worcester, Mass.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Refrigerators.
Hopper Lumber & Mfg. Co., Michigan City, Ind.
Northern Refrigerator Co., Grand Rapids, Mich.

Registering Machines.
Ives, Geo. E., New Haven, Conn.

Rivets.
Blake & Johnson, Waterbury, Conn.
Disosway & Henderson, 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Townsend, W. P. & Co., New Brighton, Pa.

Rivet Machines.
Sweetser, Wm. A., Brockton, Mass.

Road Carts.
Parry Mfg. Co., Indianapolis, Ind.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrell Foundry & Mch. Co., Waterbury, Conn.

Roll Paper Cutters.
Redhead, Norton, Lathrop & Co., Des Moines, Iowa.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron Roofing Co., Cleveland, O.
Thompson Mfg. Co., Cleveland, O.

Rules. *Manufacturers of.*
Lufkin Rule Co., Cleveland, Ohio.
Stanley Rule & Level Co., 29 Chambers,

Salt Shakes.
Paine, Diehl & Co., Philadelphia, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Bridgeport Chain Co., Bridgeport, Conn.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.

Sash Locks.
Champion Safety Lock Co., Cleveland, O.
Clancy, J. R., Syracuse, N. Y.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Moore Mfg. & Fdry Co., Milwaukee, Wis.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.
U. S. Foundry Co., 56 Pine, N. Y.

Sausage Stuffers.
Enterprise Mfg. Co., Philadelphia, Pa.

Saws. *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Chieftain Hay Rake Co., Canton, Ohio.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Eclipse.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hardware Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
St. Louis Screw Co., St. Louis, Mo.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Pierson & Co., 24-27 West, N. Y.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn
Henry Seymour Cutlery Co., N. Y.

Sheep Shears.
Henry Seymour Cutlery Co., N. Y.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Dame, Stoddard & Kendall, Boston, Mass.
Diaz, R. M. Co., Boston, Mass.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass.

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
Wallace, R. & Sons Mfg. Co., Wallingford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane, N. Y

Springs.
Dunbar Bros., Bristol, Conn.
Morgan Spring Co., Worcester, Mass.
Sabin Machine Co., Montpelier, Vt.
Titus & Babcock, Rochester, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Cotters.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Spring Hinges.
Bardsley, J., 59 Elm, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Devlin, Thos. & Co., Philadelphia, Pa.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 82 Beekman, N. Y.

Spring Keys.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.
Duncan, W. P. & Co., Bellefonte, Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis & Son, 97 John, N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia, Pa.
Milne, A. & Co., 1 Broadway, N. Y.
Montgomery & Co., 105 Fulton, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Pierson & Co., 24-27 West, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Roker, C. F., 93 John, N. Y.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh Pa.
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hicks & Dickey, Philadelphia, Pa.
Illinois Steel Co., Chicago, Ill.
Ingalls, Joshua S. & Co., Troy, Ohio.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reily, J. W., Harrisburg, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Smith Bros. & Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, *Manufacturers' Agents.*
Gautier, D. G. & Co., 114 John, N. Y.
Hicks & Dickey, Philadelphia, Pa.
Read, Irwin & Read, Pittsburgh, Pa.

Steel Nails.
Bellaire Nail Works, Bellaire, Ohio.

Steel, Sheet.
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge,
Chess, Cook & Co., Pittsburgh, Pa. Ohio.
Pope, C. E. & Bro., Pittsburgh, Pa.
Standard Iron Co., Bridgeport, Ohio.

Steel Spiral Springs, *Manufacturers*
Cary & Moen, 234 W. 29th, N. Y.
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.

Steel Tires.
Latrobe Steel Works, Latrobe, Pa.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Smith Bros. & Co., Pittsburgh, Pa.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Besly, C. H. & Co., Chicago, Ill.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander, Jas. & Son, Troy, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Stoves, Oil, Vapor and Gasoline.
Central Oil Stove Co., Boston, Mass.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y.
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Swaging Machines.
Excelsior Needle Co., Torrington.

Tack and Nail Machinery.
Sweetser, W. A., Brockton Mass.

Tack Pullers.
Hagen & Reid, W. Troy, N. Y.

Tacks, Brads, Staples, &c.
A. Field & Sons, Taunton, Mass.
American Tack Co., 116 Chambers, N.Y.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Florence Tack Co., Florence, Mass.
National Screw & Tack Co., Cleveland, Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros., Philadelphia,

Thill Springs.
Frost Thill Spring Co., Boston, Mass.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Am. Bit Brace Co., Buffalo, N. Y.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Humphrey Tool Co., Warren, Mass
Jennings, C. E. & Co., 97 Chambers, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, N. Y.
Starrett, L. S., Athol, Mass.

Tool Chests.
Am. Tool Co., 200 W. Houston, N.Y.

Tools and Machines (Tinners').
Niagara Stamping and Tool Co., Buffalo, N. Y.

Tools, Blacksmith and Wheelwrights.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'.
Enterprise Co., Sandwich, Ill.
Saunders' Sons, D., Yonkers, N. Y.

Torches, Gasoline.
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp, Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tripoli.
Am. Tripoli Co., Carthage, Mo.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Lansing Wheelbarrow Co. Lansing, Mich.

Tube Scrapers.
Chalmers-Spence Co., 419 8th, N. Y.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bridgeport Brass Co., 19 Mur'y, N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Leng, John S., 4 Fletcher, N. Y.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Typewriters.
Smith-Premier Typewriter Co., Syracuse, N. Y.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
Leng, John S., 4 Fletcher, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Higganum Mfg. Corp., Higganum, Conn

Washers.
Milton Mfg. Co., Milton, Pa.

Welding Machines.
Thomson Electric Welding Co., Boston

Well Machinery.
American Well Works, Peoria, Ill.

Wheelbarrows.
Lansing Wheelbarrow Co., Lansing, Mich.
McNeil, G. C., Akron, Ohio.

Wheels.
Quincy Metal Wheel Co., Quincy, Ill.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.
Lewis, John T. & Bros. Co., Phila.
Southern White Lead Co., St. Louis, Mo.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass

Wire, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Cary & Moen, 234 W. 29th, N. Y.
Emmons, F. R. & Bro., 21 Warren, N. Y
Fuller Bros. & Co., 139 Greenwich, N. Y.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Worcester Wire Co., Worcester, Mass.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Higganum Mfg. Corp., Higganum, Conn
King, J. M. & Co., Watertown, N. Y.

Wire and Rod Cutters.
Collins-Goodin Mfg. Co., St. Louis, Mo.

Wire Dies.
McFarland, Wm., Trenton, N. J.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
Thompson, Richard Co., Ltd., 105 Chambers, N. Y.
The Wire Goods Co., Worcester, Mass.

Wire Fences.
Gilbert & Bennett Mfg. Co., 42 Cliff
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Goods, *Manufacturers of.*
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., N. Y.
Hollow Cable Mfg. Co., Hornellsville.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Adt, John & Son, New Haven, Conn.
Collins-Goodin Mfg. Co., St. Louis, Mo.
Manville, E. J. Mch. Co., Waterbury, Ct

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 32 Liberty.
Sweetser, W. A. Brockton, Mass.

Wire Nails.
American Tack Co., Fairhaven.
Braddock Wire Co., Pittsburgh, Pa.
Dunbar, Hobart & Co., 39 Warren, N. Y.
Field, A. & Sons, Taunton, Mass.
New Castle Wire Nail Co., New Castle, Pa.
Phillips, E. & Sons, South Hanover.
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Trufant, W. E., Whitman, Mass.
Whitney, A. R. & Co., New York City.
Wire Goods Co., Worcester.

Wire Rods, Steel.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle, Pa.
Whitney, A. R. & Co., 17 B'way, N. Y.

Wire Rope, Iron and Steel
Makers.
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Tate & Co., Malden, Mass.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
Udell Woodenware Wks, Indianapolis Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrenches, *Manufacturers of.*
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass
Graham, Bailey & Co., Buffalo, N. Y.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

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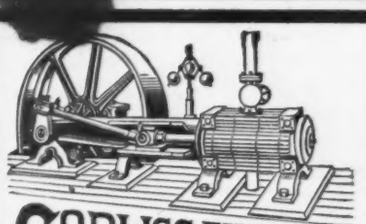
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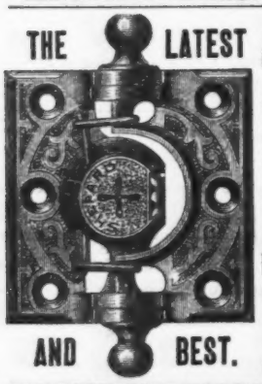
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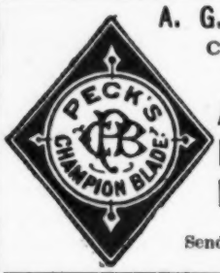
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